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(SL-7-10)

THIRD SEASON RESULTS FROM SHIP RESPONSE INSTRUMENTATION ABOARD THE SL-7 CLASS CONTAINERSHIP S.S. SEA-LAND MCLEAN IN NORTH ATLANTIC SERVICE

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1976

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This report is one of a group of Ship Structure Committee Reports which describes the SL-7 Instrumentation Program. This program, a jointly funded undertaking of Sea-Land Service, Inc., the American Bureau of Shipping and the Ship Structure Committee, represents an excellent example of cooperation between private industry, regulatory authority and government. The goal of the program is to advance understanding of the performance of ships' hull structures and the effectiveness of the analytical and experimental methods used in their design. While the experiments and analyses of the program are keyed to the SL-7 Containership and a considerable body of the data will be developed relating specifically to that ship, the conclusions of the program will be completely general, and thus applicable to any surface ship structure.

The program includes measurement of hull stresses, accelerations and environmental and operating data on the S. S. Sea-Land McLean, development and installation of a microwave radar wavemeter for measuring the seaway encountered by the vessel, a wave tank model study and a theoretical hydrodynamic analysis which relate to the wave induced loads, a structural model study and a finite element structural analysis which relate to the structural response, and installation of long term stress recorders on each of the eight vessels of the class. In addition, work is underway to develop the initial correlations of the results of the several program elements.

Results of each of the program elements will be published as Ship Structure Committee Reports and each of the reports relating to this program will be identified by an SL- designation along with the usual SSC- number. A list of all of the SL reports published to date is included on the back cover of this report.

This report contains a portion of the data with a preliminary discussion and evaluation of the third season of data collection from 17 January 1975 to 17 March 1975. The instrumentation was modified this season to emphasize hatch corner and bow side shell strains. The basic instrumentation of prior seasons was retained. Please refer to the outside rear cover for ordering information on the reports from the first two seasons numbered SL-7-8 and SL-7-9.

W. M. Benkert

Rear Admiral, U.S. Coast Guard Chairman, Ship Structure Committee

THIRD SEASON RESULTS FROM SHIP RESPONSE INSTRUMENTATION ABOARD THE SL-7 CLASS CONTAINERSHIP S.S. SEA-LAND McLEAN IN NORTH ATLANTIC SERVICE

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SHIP STRUCTURE COMMITTEE 1976

(SL-7-10)

Technical Report

on

Project SR-211, "SL-7 Data Collection"

THIRD SEASON RESULTS FROM SHIP RESPONSE INSTRUMENTATION
ABOARD THE SL-7 CLASS CONTAINERSHIP
S.S. SEA-LAND MCLEAN IN NORTH ATLANTIC SERVICE

by

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Teledyne Materials Research

under

Department of the Navy Naval Ship Engineering Center Contract No. NOO024-75-4354

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U. S. Coast Guard Headquarters Washington, D.C. 1976

ABSTRACT

One of the class of eight SL-7 high speed containerships has been extensively instrumented with stress, strain and motion sensors. These have been modified for the Third Season of data acquisition to emphasize measurement of hatch corner and bow sideshell strains. Much of the previous instrumentation inventory, including a wave height radar and Tucker wave meter, has also been employed in the Third Season. This report contains a summary of the recorded data, examples of the analog records, a catalog of the data formats and a listing of the available data intervals. Some analysis of the data is also reported including midship bending stresses encompassing all three data seasons.

Data collection for the third season began with the west-bound North Atlantic voyage 59 on January 17, 1975 and terminated with westbound voyage 61 on March 17, 1975.

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I. INTRODUCTION

The S.S. SEA-LAND McLEAN is the first of the new SL-7 class of high-speed containerships. Characteristics of the vessel are given in Table I, and the vessel is shown in the photograph of Figure 1. A multifaceted program of analysis and experiments, coordinated by the SL-7 Program Advisory Committee of the National Academy of Sciences--National Research Council, has been instituted to study this ship's structure and its responses to imposed loading. One important facet of this program is the collection of data on structural and dynamic responses of the actual (i.e., full-scale) ship's structure. This is being accomplished by an on-board instrumentation system with sensors located throughout the vessel measuring strains, stresses, accelerations, various sea characteristics and ship operating parameters. Presented in this report is a summary of the data gathered during the third season of operation on North Atlantic Voyages 59-61 during the period 17 January 1975 to 17 March 1975.

Data acquired during the first season were presented in Reference 1, which covered Voyages 1 to 12 on the North Atlantic during the period 8 October 1972 to 5 April 1973. A total of 80 data tapes were recorded containing over 50,000 sensor data intervals from more than 100 transducers. The report included a description of the digitized data, correlations of stresses with sea state, simultaneous response data from all transducers during selected portions of a rough voyage, and a consideration of torsional responses. Data were reported in a number of forms, including expanded time-histories, logbook tabulations, tabulations of maximum values scaled from compressed time-histories, and plots derived from parametric studies of digitized response and logbook data.

Data acquired during the second season were presented in Reference 2, which covered Voyages 25-38 on the North Atlantic during the period 22 September 1973 to 31 March 1974. A total of 94 data tapes were recorded containing over 60,000 sensor data intervals from more than 100 transducers. Except for some minor changes, the arrangement of the transducers was identical to that employed during the first season. A major slam event was experienced during the second season while the ship was at very slow speed. These data were reported in the form of analog plots, tables of maximum recorded values, and expanded time-histories in addition to presentations similar to those made for the first season.

A significant amount of new strain gage instrumentation was installed for the third season data acquisition program. The location of this gaging was based on observations of damage incurred in the first two years of vessel operation. Specifically, radial cracks from the forward and some aft hatch corners and green water set-down of the forecastle and bow flare plating had been experienced. In an attempt to characterize the loading in these areas, additional strain gages were added. All new instrumentation was assigned to Recorder No. 2 while keeping the Recorder No. 1 assignments similar to those used in the second data acquisition season. All primary data (i.e., horizontal and vertical bending, pitch, roll, etc.) including those signals required to extract the wave height data from the slant range radar signal, are collected on Recorder No. 1, the same signal being recorded on the same channel in each interval. In contrast, four signals are recorded on each channel of Recorder No. 2, one in each of the four sequential modes. These assignments are further discussed in this report.

A detailed description of the instrumentation system has been published previously in Reference 3, and the calibration of the McLEAN is reported in Reference 4.

The purpose of this document is to present some of the more significant trends derived from Third Season data and to serve an an index for the retrieval of data, in the various formats available, for further analysis and correlation. As such, it is not intended that all possible data correlations or even that all raw data be reported herein, since much of the data is available only in FM magnetic tape format. This analysis task is part of the overall SL-7 program and is identified as SR-211.

II. CONCLUSIONS

The following conclusions are based on the review of Third Season data and data reduction and statistics as completed to date and presented in this report:

- 1. The highest peak-to-trough stress measured was 79 Ksi on the forward hatch corner circumferential gage (F_vB).
- 2. The hatch corners exhibit high stresses (especially in quartering seas) even under moderate wave conditions.
- A correlation exists between the midship torsional stress and the circumferential hatch corner stress.
- 4. For the environmental conditions encountered (Beaufort No. 9, or less), sideshell stresses were relatively low and almost unidirectional in tension, indicating relatively low impact loading.
- 5. The environmental conditions encountered during the Third Season, as indicated by the Beaufort Number distribution, were less severe than the yearly average for the mid-North Atlantic.

III. INSTRUMENTATION SYSTEM

The basic instrumentation system has been described fully in previous reports (see References 1, 2 and 3). Described herein are the changes incorporated for the Third Season and the channel assignments and formats used in the data acquisition.

A. Added Instrumentation

A significant amount of new instrumentation was installed for Third Season data acquisition. Only minor revisions were made on the Recorder No. 1 inputs, but all modes of Recorder No. 2 inputs represent reassigned or newly-installed strain gages. In order to allow for correlations between various regions of the bow, the modes were structured to have overlapping recording periods. Table II lists the various groups of gages recorded in each mode.

1. Bow Sideshell

Single-element weldable strain gages were installed along the longitudinal axes of selected vertical stiffeners at the free top surface. They were

located on central stiffeners between major frames at the vertical midpoint. Gage locations and identification are shown in Figure 2.

2. Hatch Corner

Figure 3 shows the location and identification of strain gages at the three selected hatch corner cutouts. The gages at Frame 144 were mounted during the original installation. Although the rosette (AR $_2$) was recorded during the first two seasons, the S $_y$ gages were used only during the calibration experiment. (See Reference 4.) At Frame 258, the rosette was also previously used but the hatch corner gages were newly installed. At Frame 290, all new gages were installed since the rosette at this location had been damaged during the course of structural modifications in this area. Rosette identification is the same as that previously used.

Recording of the hatch corner rim gages and their associated rosette was in the "D" mode of each index, as indicated in Table II. The forward corner gages at Frame 290 were recorded in all "D" modes and Frame 144 or Frame 258 gaging were recorded alternately on a daily basis.

3. Forward Dyadic Array

The only change made to Recorder No. I channel assignments was the substitution of a forward quarter point vertical bending transducer for the forward shearing stress array on channel 13. It was expected that useful comparisons could be made between the output of this sensor and the newly-installed bow gages. Since the gage array was installed only during the Third Season, a vertical bending calibration is not available for it.

B. Recording Format

All of the information obtained from the various transducers located throughout the vessel was recorded on two 14-track analog FM tape recorders located in the instrumentation room. Recorder No. 1, designated the primary recorder, recorded the same 13 signals whenever it was placed in operation. The fourteenth channel was used as a noise compensation channel during reproduction.

The second recorder had its first thirteen channels switched through four modes, designated A, B, C, and D. Each mode was recorded for thirty minutes sequentially. Channel 14 was again used as a compensation channel in all modes. Each 30-minute period is a data "interval," and is assigned an interval number. Any particular segment of data can thus be identified by referring to the following nomenclature.

- Tape number--(All odd numbers are from No. 1 Recorder and all even numbers are from Recorder No. 2. Third Season analog tapes are numbered from 201/202 to 233/234 inclusive.)
- 2. Voyage number and direction (E = East, W = West).
- 3. Index number (sequential numbering of each four-hour logbook entry accompanying each data tape).
- 4. Channel number and mode letter (Recorder No. 2 only).

5. Interval number.

By specifying "Tape No. 202, Voyage 59E, Index 1, Channel 1-A, Interval 1" a specific 30-minute data interval is identified, in this case on Recorder No. 2.

Each interval of 30 minutes, whether on Recorder No. 1 or No. 2, is automatically preceded by a one-minute electrical zero and a one-minute period of calibration signals. A typical data interval trace is presented in Figure 4.

C. Configuration of Transducers

1. Strain Gage Signals

The majority of the transducers used in this system are obtained from various configurations of single-element strain gages with associated bridge completion and calibration resistors. These gages are attached by spot-welding to the surface of various hull structural elements. Each strain gage is constructed with inherent temperature compensation. That is, if the gage is attached to a plate which is subsequently warmed (or cooled) but is otherwise unrestrained, no change in strain will be indicated. If that plate is now restrained from expansion due to the temperature change, a signal associated with the degree of restraining stress generated will be indicated even though no change in length occurred. Such a restraint is generated, for example, when the sun warms the deck or upper hull girder while the lower hull is in cooler water. This diurnal variation tends to induce compressive deck stresses and tensile stresses under the waterline even though the displacement tends to hog the ship.

Sketches summarizing the locations of the strain gage sets are presented in Figures 5 and 6. It should be noted that the single-element strain gages used are installed in various configurations which have different properties. These are described in detail in Reference 3, but can be summarized as follows:

- a. Single element (quarter bridge) a single strain gage element. Its output is proportional to the strain along the element.
- b. Dyadic gage two single elements at an angle of 56° to each other for materials such as steel with μ = 0.28. In this configuration the output is proportional to the stress along the axis of symmetry.
- c. A dyadic pair of gages oriented longitudinally on each side of the ship, each pair connected to one arm of the bridge circuit. Depending on whether the arms are opposite or adjacent, the output of this arrangement is proportional to the average or horizontal bending stress.
- d. Shear gage (half-bridge) two single elements at right angles to each other. The output is proportional to the shearing stress along the axis of symmetry.
- e. A shear gage half-bridge on each side of the ship connected to form a full bridge. Depending on the polarity of the connection, the output is proportional to the vertical or torsional shearing stress.

f. Rosette - three single gage elements, each at a different direction, near a point. This is a special case of the single element gage. Each signal output is recorded separately and simultaneously. If static strains are added these readings completely define the state of strain (both the normal and shearing strains, in any direction) at this point. In the McLEAN installation, the rosette gage elements were oriented in a longitudinal, athwartship and diagonal (from forward port to aft starboard) direction.

2. Transducer Signals

In addition to the strain gage signals discussed above, 10 additional transducer signals are provided as inputs to the recording system. These signals, consisting of eight linear accelerometers and two angular displacement pendulums, are fully described in Table III. The primary function of these signals is to provide a record of ship motions occurring at the same time as the recorded strain gage information.

3. Rudder Angle

Although in previous data seasons a multiplexed signal consisting of various ship operating parameters was recording on Channel No. 10 of Recorder No. 1, in the Third Season this was restricted to rudder angle.

4. Wave Height Radar

The Ocean Wave Height Radar System (OWHRS) developed by the Naval Research Laboratory was operational for part of the third season, and slant-range data were recorded. The transmitting electronics package is located at the parabolic antenna, which is mounted at the starboard wing of the bridge and adjusted to look down at the water surface at a fixed angle to the ship. The slant-range signal, therefore, contains components of ship motions, particularly rolling. The reduction of these data to absolute wave height is the objective of a separate project under the Ship Structure Committee.

5. Tucker Wave Meter System

A second attempt to achieve wave data has been made in this program by the continued inclusion of a Tucker Wave Meter aboard the vessel. This British device, which consists of pressure cells and accelerometers mounted both port and starboard, was installed at the end of the first season's operation. Data from this instrument is to be compared to that obtained from the OWHRS.

6. Scratch Gages

Under a separate Ship Structure Committee project (SR-215, "Extreme Stress Data"), mechanical scratch gages have been installed at a midship location on all eight vessels of the class. The device consists of a simple extensometer with mechanical amplification which causes a stylus to mark on sensitive paper. The paper is advanced once every four hours and the record thus obtained shows the maximum positive to maximum negative excursion of the stylus in a four-hour period. One scratch gage is located in each ship's starboard tunnel near the midship frame except for the McLEAN, which has one scratch gage in each tunnel. Data tapes are being retained by Teledyne as part of the SL-7 Data Library.

Logbook

An important adjunct to the data recorded on the two magnetic tape recorders is the data logbook kept by the instrumentation observer. Appendix A contains a summary of logbook entries. Environmental conditions are noted here along with information to index the tape recordings. All sea, wind and wave conditions reported here are derived from this source.

8. Quick-looks

The data reduction process actually begins with "quick-look" playbacks made aboard the ship. Each tape is played back on an oscillograph at a relatively high speed, with a low paper speed. This produces a compact hard-copy record for review. Signal peaks, relative levels and overall variations may be judged from these records, but details of the waveform cannot be seen.

To summarize, shipboard data gathering produces analog magnetic tapes of the recorded data from two tape recorders running simultaneously. In addition, a manual logbook record is maintained which correlates the magnetic tape data with the conditions existing at the time of the data recording. Quick-look records are also produced for on-site quality control purposes, but these have little application to most data analysis procedures except for scaling an overall maximum value for each interval.

D. Data Analysis Operations at TMR

Analog Oscillographic Records

As shown in Figure 7, the preponderance of data reduction takes place after the recordings are removed from the ship. After review of the logbook records and taking into account the notes of the on-board observer, certain sections of data are played back onto oscillographic records. Details of this operation depend on the type of analysis being done; it may be desired to compare one channel relative to another for a long period, or only the response for a short period around some event such as a slam. Examples of records are presented in later sections.

2. Filtering and Digitizing

Most large-magnitude stress records, especially those associated with slamming and similar dynamic events, can be separated into two components: wave-induced, and first-mode two-noded vibrations ("whipping," or "springing"). Each component is characterized by its frequency. The first-mode frequency of the McLEAN at normal operating load is 0.80 Hz, while wave-induced components are lower in frequency (i.e., longer in period). Separation of these components is accomplished by passing the electrical signal representing the stress level or sensor output through electronic filters adjusted for the appropriate bandpass frequencies (see Figure 8). The resulting filtered signal (or the original combined signal) may then be reproduced on an oscillograph to produce a time history, or it may be digitized in order to change its format for further processing.

Certain channels are selected for digitizing and further processing into library tapes. The details of this process are presented in Reference 4. In this step the logbook record is collated with the corresponding stress or motion data. In addition to a digitized data record, this operation also computes numbers

characterizing each data interval, such as the maximum peak-to-trough, root-mean-square (RMS), and number of cycles. Some of these data have been used further in various analyses described below.

The library tapes (see Figure 7) can be summarized further by deletion of the complete digitized record. This summary tape can provide a computer-generated tabulation of environmental and characteristic data. Examples of these data are provided as a separate Appendix to this report. The summary tape also provides the data base for the parametric studies discussed below. Header block and data summary block formats for summary tapes are given in Tables IV and V, respectively. It should be noted that summary tapes do not contain data on which to base spectra, nor, as presently structured, do they contain computed values for the original waveform. Values reported are only for the wave-induced (maximum, RMS) and first-mode (maximum only) components.

A general summary of the SL-7 data formats currently available is presented in Table VI.

IV. RESULTS

A. Environmental Conditions

Environmental conditions experienced during the third season data acquisition were generally milder than those encountered in previous seasons and were, on average, lower than an average year at mid-Atlantic. Figure 9 presents a comparison of average Beaufort Numbers for the mid-North Atlantic and those observed for the Third Season. Note that the average and observed frequency of occurrence for Beaufort Numbers 5, 6, and 7 are almost the same. The observed frequency is lower than the average for higher Beaufort Numbers and higher than the average for the lower Beaufort Numbers.

B. Hatch Corner Stresses

The highest stresses observed during the Third Season, and, in fact, the highest stress ever recorded aboard an SL-7, were at the forward hatch corner. Figure 10A, B, C presents data from these gages, FyA, FyB, and FyC respectively, as a function of Beaufort Number and relative wave direction (RWD). Note that the highest stresses were at the FyB location and that the highest stresses occurred in following and beam sea direction for the higher Beaufort Numbers and in head seas for the lowest Beaufort Number.

It was also characteristic of these stresses that their magnitude was high even for relatively low wave heights. Figure 11 presents a composite of simultaneous signals from Recorder No. 1 and No. 2 showing some of these relationships. The frequency, location of maxima, and general envelope of amplitudes show a high degree of correlations between the TSM, Roll and FyB signals. A probable explanation lies in the link between ship's roll which produces torsional loading thus imposing high hatch corner stresses. Such high stresses were previously noted during the calibration event (see Reference 4) when the vessel was loaded statically with a torsional load. The highest stress measured at that time was 10.2 Ksi at the hatch corner just forward of the aft house. No gages were located at the forward hatch during calibration or during the first two data acquisition seasons.

In order to explore the relationship observed between TSM and FyB, Figures 12A and 12B were prepared. These clearly indicate the linear relationship between TSM and FyB, and also indicate the presence of another factor inherently different in eastbound and westbound voyages. This factor is probably the relative wave direction, since with prevailing winds generally from the west, an east-bound crossing would have a preponderance of following seas and, conversely, a west-bound crossing would have a preponderance of head seas.

Table VII is a listing of four maximum recorded stress conditions that occurred during the past season. It should be noted that the highest rim stress occurs while the ship is rolling. Rim gages at FR 290 (F_y gage) exhibit the largest stress during a rolling condition while the gages at FR 144 (S_y gage) are about half that stress. At FR 258 (H_y gage) the stress is about half of that at the S_y gages.

In head seas the stress is about equal at each of the three hatch locations. All stress values given are maximum peak-to-trough for each thirty-minute period recorded.

Figure 13 presents expanded time-history data for a rolling condition, and Figure 14 is the same for a head sea condition. Logbook data for both conditions are listed in Table VIII. Also included are time histories from Recorder No. 1 for each condition. Note that the highest hatch corner stress occurs at the same time that longitudinal horizontal bending stress and torsional shearing stress are high under both conditions. It appears that horizontal bending and torsion contribute more to the increased stress in the hatch corner than do vertical bending or ship slamming. (Due to the nature of the horizontal bending transducer, some torsion-induced stress is sensed by it.)

Table IX lists the apparent maximum peak-to-trough stress recorded from each element of the rosettes and each rim gage at the same time. Expanded records are also included in Figures 13 and 14.

Included in Table V is a calculated principal stress based on the peak-to-trough data. This table gives the stress in the original orthagonal directions, the principal stress magnitude and its angle with the "A" element. These calculated values are not strictly valid in this case as they are peak-to-trough and do not include the still-water stress component. In each case, the time-history of the highest strain level element of the rosette was scanned visually, and the one highest stress instant determined. Then, the strains in all three elements occurring at that instant were scaled and recorded.

C. Bow Sideshell Stresses

As can be seen in the sets of analog traces given in Figure 15, the bow sideshell stress traces are characterized by unidirectional spikes without any prior buildup or other significant warning.

The highest stresses recorded during the Third Season occurred on Voyage 61 westbound. Maximum values have been scaled and tabulated from oscillograph records from 18 intervals. Logbook data for these are listed in Appendix A, pages 52 and 53. Stress data are presented in Table X. All stresses are measured peakto-trough. The highest recorded stress, 6,000 psi, was noted twice on Gage B-5 and once on Gage C-2. Expanded time-histories of the analog signals of Interval

31A, B, C are included in Figure 15. The longitudinal vertical bending signal is on each sheet for cross-referencing purposes. Horizontal bending, roll, and pitch signals are included from Recorder No. 1. The measured value of highest stress on the bow plate occurred during the highest vertical bending stress and a simultaneous high pitch excursion. The bow plates exhibit a very low stress profile from ship motion. All increased stress is an impact type occurring when the ship pitches down and the bow is subjected to head seas. Beam, quartering, or following seas have no effect on increased bow stress regardless of ship speed. It should be noted again that during the past recording season, the ship did not encounter the extremes of weather and sea conditions due to the change to a more southerly crossing and reduced speed.

D. Wave Height Measurements

The outputs of two independent wave measuring systems were recorded along with the stress and motion data. (See Figure 16.)

The Tucker wave meter output already has been corrected for ship vertical movement at the pressure ports by accelerometers intrinsic to the Tucker system. Further correction is, nevertheless, necessary since the system is designed for quasi-static use (i.e., ship's speed effects are not accounted for). See Reference 2.

The Ocean Wave Height Radar output is proportional to the slant range from the fixed (relative to the ship) transmit/receive antenna to the wave surface. All ship's motions influence this measurement and it, therefore, must be corrected before the true wave height can be obtained. This manipulation is part of another SL-7 effort (SR-221). Note the flat area in the OWHR trace. This is a result of loss of "lock" in the radar system and results in difficulties when an automated data reduction process involving integration is attempted.

Note also that the two wave measuring systems are located at different points on the vessel and "see" different wave systems.

E. Longitudinal Vertical Bending Stress

As the single most important structural parameter for ship design, the LVB was given special attention in the process of data reduction.

The process outlined in Figure 7 and 8 was used to digitize all Third Season LVB data. The listing resulting from the TAB program is contained in Appendix A. In addition to listing the various values of the first-mode and wave-induced stresses, the listing also presents all environmental conditions for each Third Season interval.

Appendix B contains the results of the parametric studies program, SPLOT. Contained in the plots are graphs of the wave-induced bending stresses for each Beaufort Number. Within each Beaufort Number, the given parameter is sorted into one of five groups of relative wave direction or ship speed. The plotted point is then the mean, RMS, or mean of the 1/3 highest values of the sorted parameter data set. The parameter can be either the maximum or RMS peak-to-trough wave-induced stress within each interval. The summary tables in this Appendix contain, in addition, the number of points in each parameter data set and the standard deviation of the set.

Since these values are based on the data contained on the summary tape in accordance with the format described in Reference 5, no value relating to the maximum value of the original unfiltered signal is available. A program has been developed titled MAX which processes the compacted library tape and computes the difference between the largest positive and most negative value. The results of this program are listed in Appendix C. The designation of the interval is identical to that for the Appendix A listing.

A further processing of LVB stresses by the SPLOT program has been made using the digitized results from all three seasons. For LVB this encompasses over 5000 data interval points for each RMS or maximum peak-to-trough wave-induced stress. Note that in the case of a sort by relative wave direction, all curves lie very close together except for the higher Beaufort Numbers where there is a scarcity of data points. This is to be expected since only the wave-induced stress component is plotted and, if Beaufort Number is considered a reasonable measure of wave height (assuming a fully-developed sea) then the relative wave direction should have little or no influence on the wave-induced stress component.

REFERENCES

- 1. Boentgen, R.R.; Fain, R.A.; Wheaton, J.W.; <u>First Season Results From Ship Response Instrumentation Aboard the SL-7 Class Containership S.S. SEA-LAND McLEAN in North Atlantic Service; SSC-264, (SL-7-8).</u>
- 2. Wheaton, J.W.; Boentgen, R. R.; Second Season Results From Ship Response Instrumentation Aboard the SL-7 Class Containership S. S. SEA-LAND McLEAN in North Atlantic Service; Teledyne Materials Research, Waltham, MA., 1975 Technical Report No. 1559 (j).
- 3. Fain, R.A.; <u>Design and Installation of a Ship Response Instrumentation</u>
 <u>System Aboard the SL-7 Class Containership S.S. SEA-LAND McLEAN, Report SSC-238 (SL-7-1) 1963.</u>
- 4. Boentgen, R.R.; Wheaton, J.W.; Static Structural Calibration of Ship Response Insturmentation Aboard the S.S. SEA-LAND McLEAN; Report SSC-263 (SL-7-7).
- 5. Johnson, A.E., Jr.; Flaherty, J.A., and Walters, I.J.; A Method for Digitizing, Preparing, and Using Library Tapes of Ship Stress and Environmental Data; Report SSC-236, 1973; and Computer Programs for Digitizing and Using Library Tapes of Ship Stress and Environment Data; Report SSC-237, 1973.
- 6. Statistics on Wave Heights and Periods for the North Atlantic Ocean David Taylor Model Basin R&D Report 1091, September 1957.

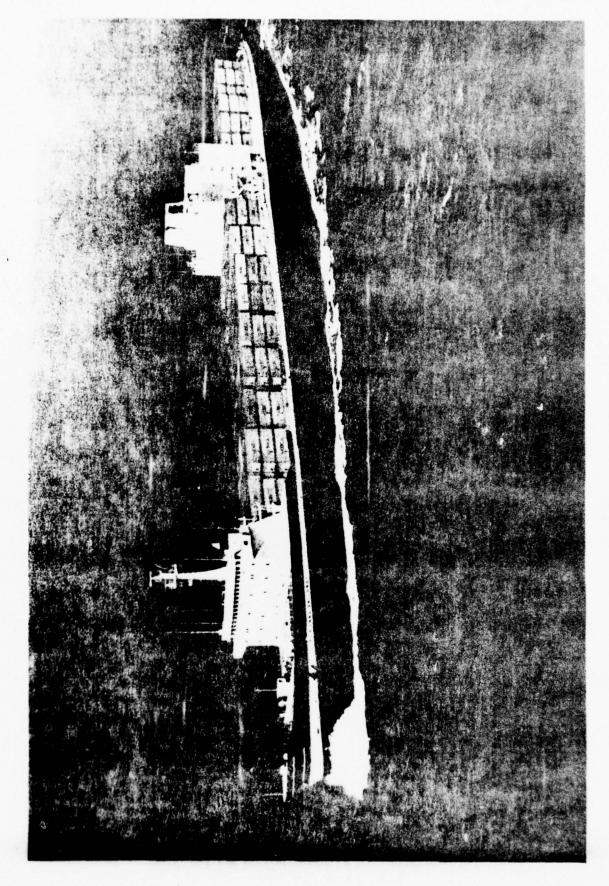
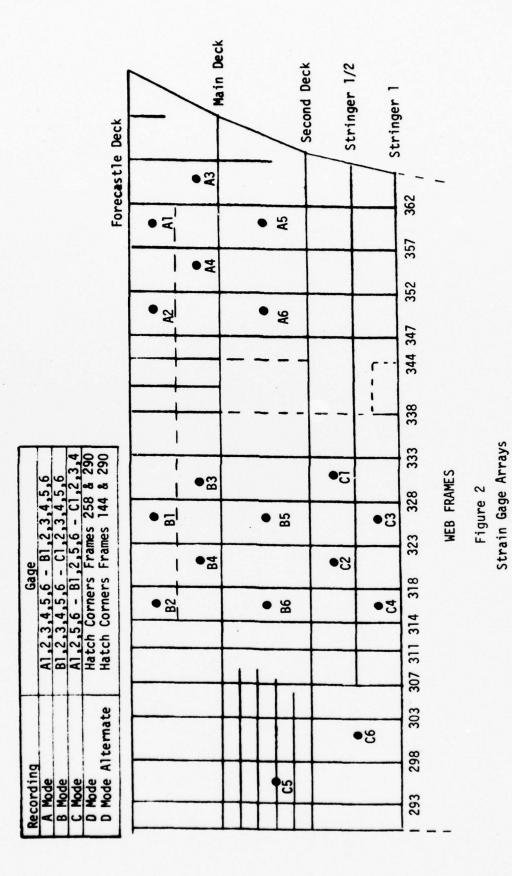
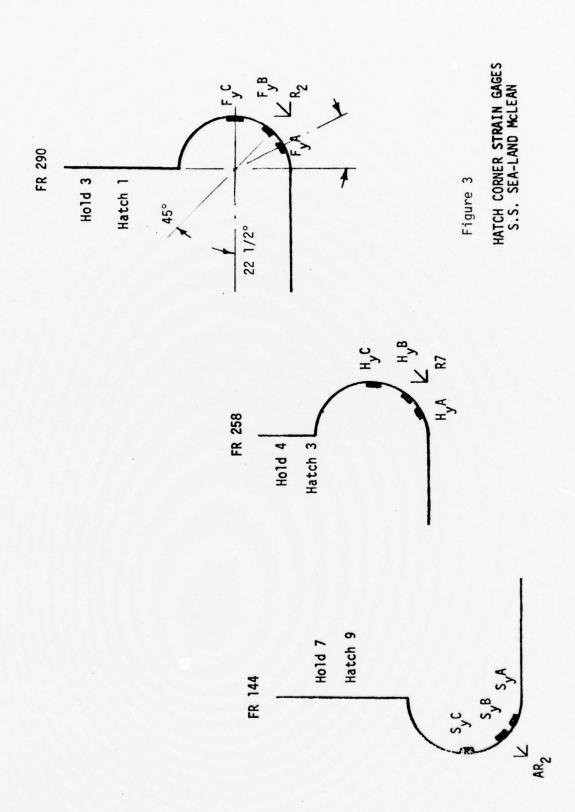


Figure 1. SL-7 Class Containership



Forebody Structure, SS SEA-LAND MCLEAN (Starboard Side Only)



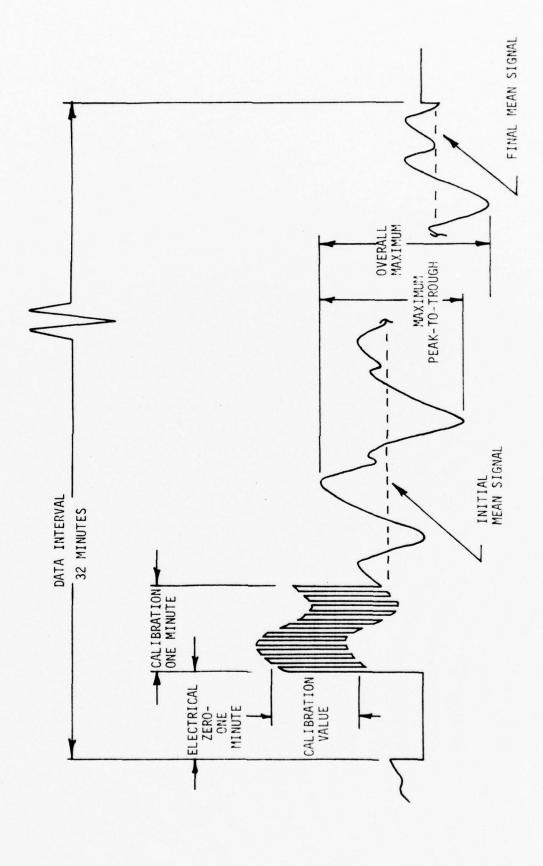
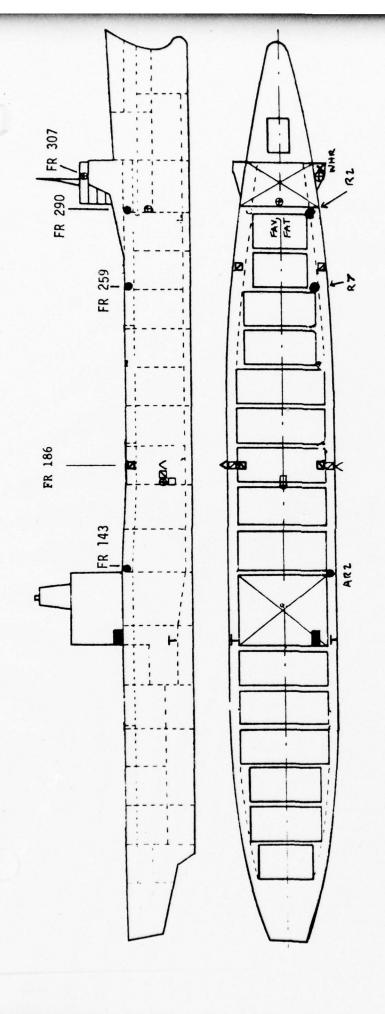


Figure 4. TYPICAL ANALOG DATA INTERVAL RECORD



LEGEND

Bidirectional Accelerometer

Midship Torsional Shear Element (TSMP, TSMS)
Longitudinal Horizontal Bending Element (LHBS, LHBP)

■ Longitudinal Vertical Bending Element (LVBS, LVBP)
□ Pitch and Roll Pendulum

● Three-Arm Rosette (R, AR)

X Wave Height Radar (WHR)

T Tucker Wave Meter (TWM)

FIGURE 5 GENERAL SENSOR LAYOUT

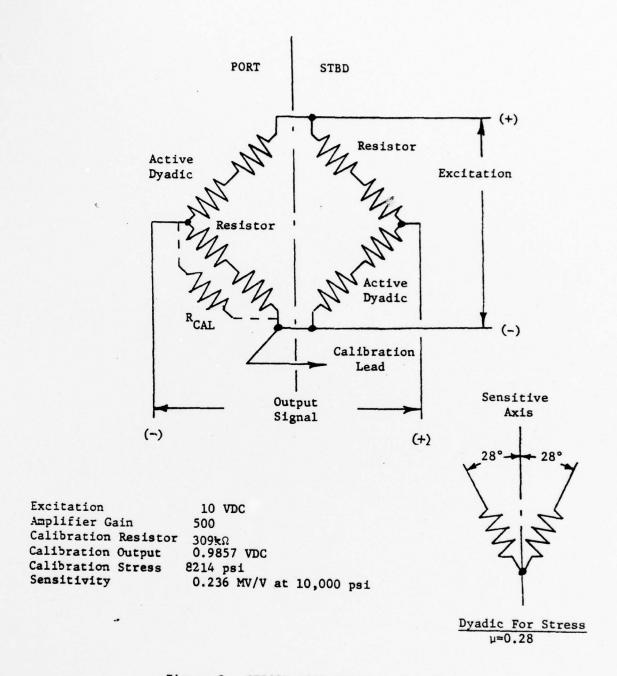


Figure 6. STRAIN GAGE CIRCUIT AS USED FOR LONGITUDINAL VERTICAL BENDING (LVB) STRESS, MIDSHIP AND FORWARD

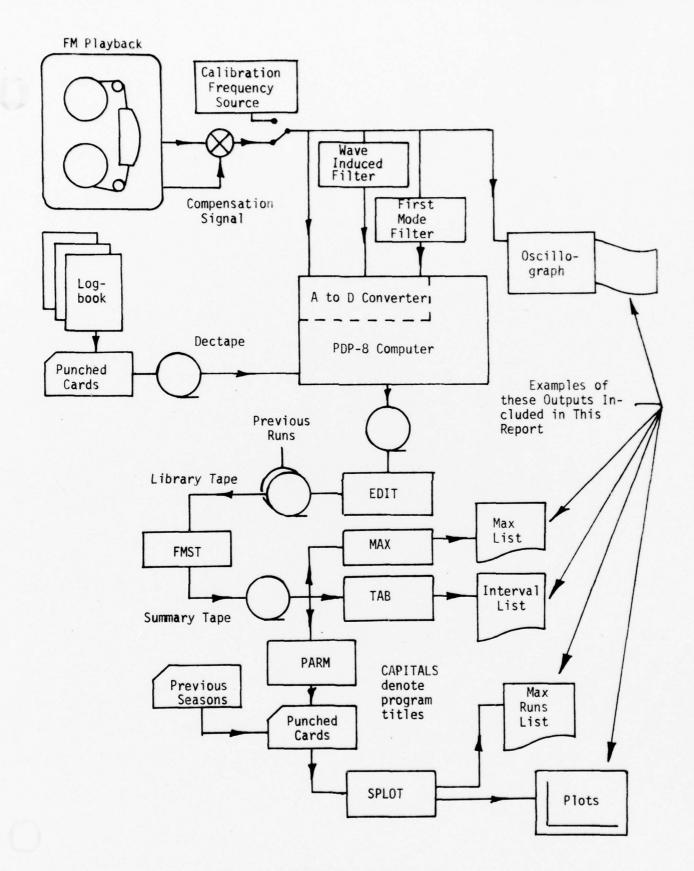


Figure 7. SCHEMATIC OF DATA REDUCTION

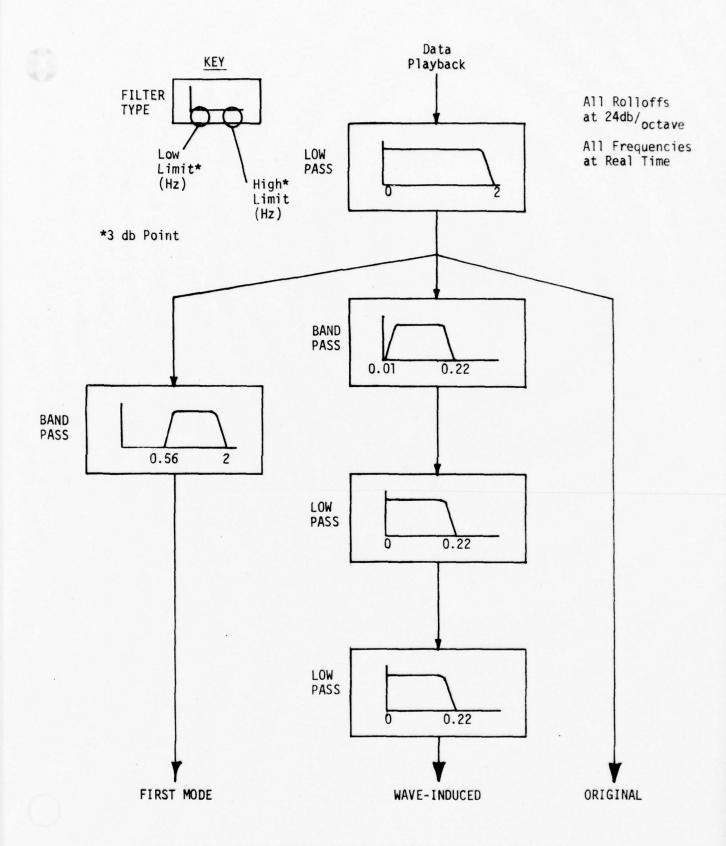


Figure 8. THIRD SEASON SIGNAL FILTERING FOR LYB DIGITIZING

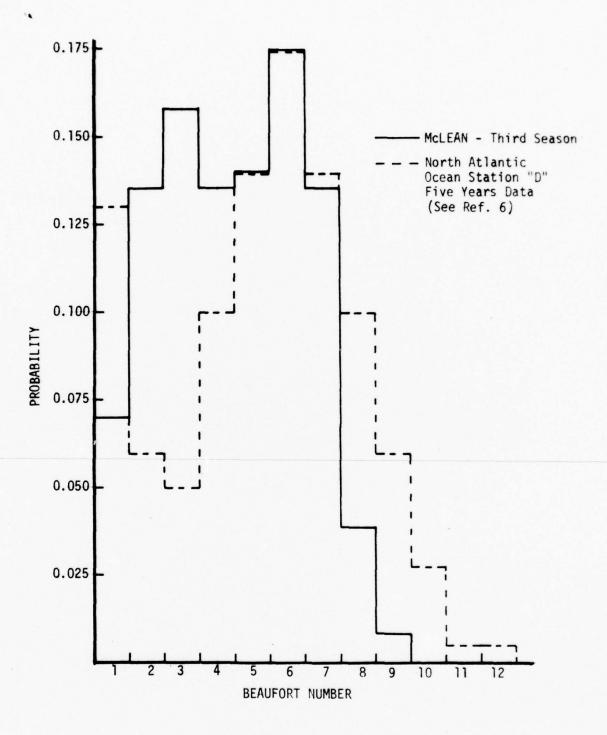


Figure 9 NORMALIZED HISTOGRAM OF BEAUFORT NUMBERS ENCOUNTERED

RWD = RELATIVE WAVE DIRECTION P = POINTS USED

O = DENOTES MEAN POINT

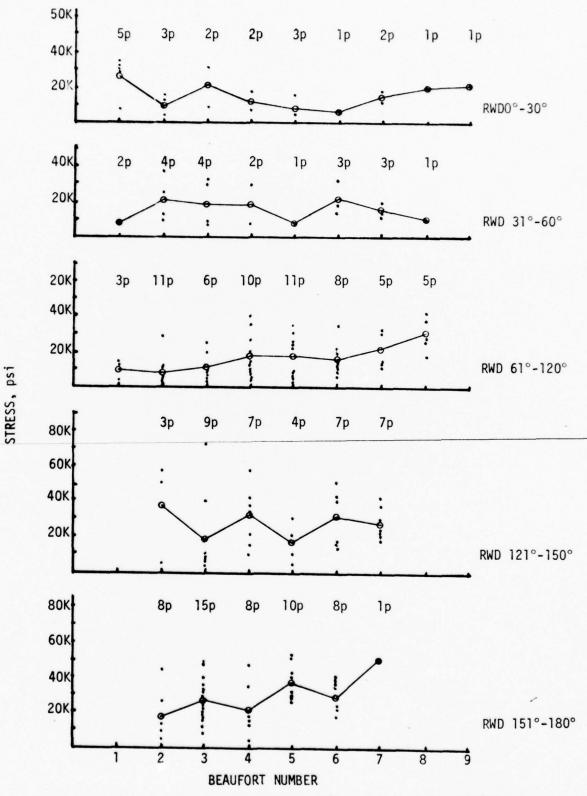


Figure 10A. AVERAGE OF MAXIMUM FyA STRESS WITHIN EACH INTERVAL

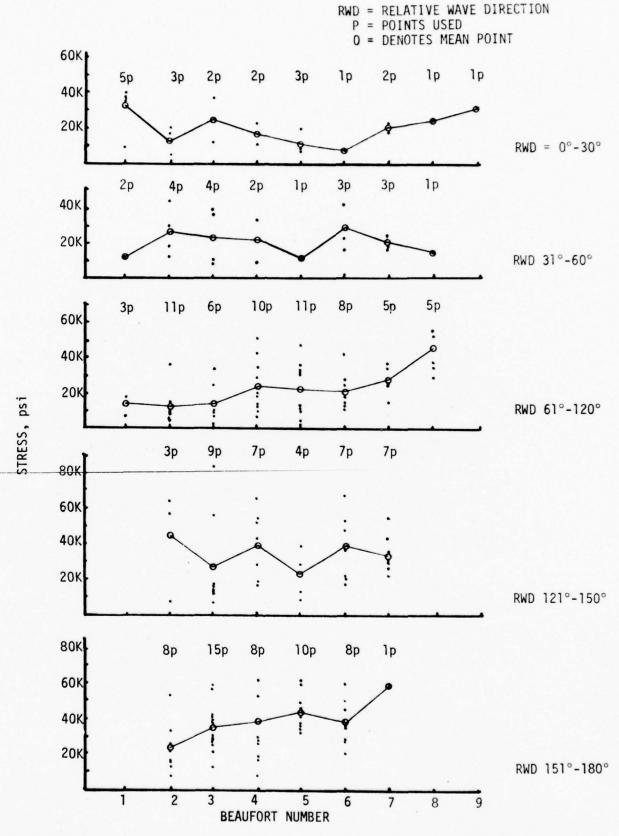


Figure 10B. AVERAGE OF MAXIMUM FyB STRESS WITHIN EACH INTERVAL

RWD = RELATIVE WAVE DIRECTION P = POINTS USED O = DENOTES MEAN POINT

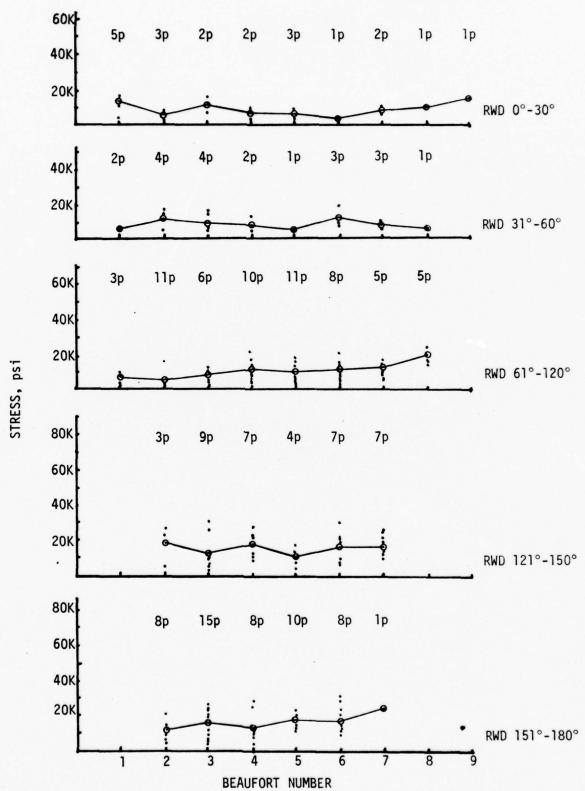
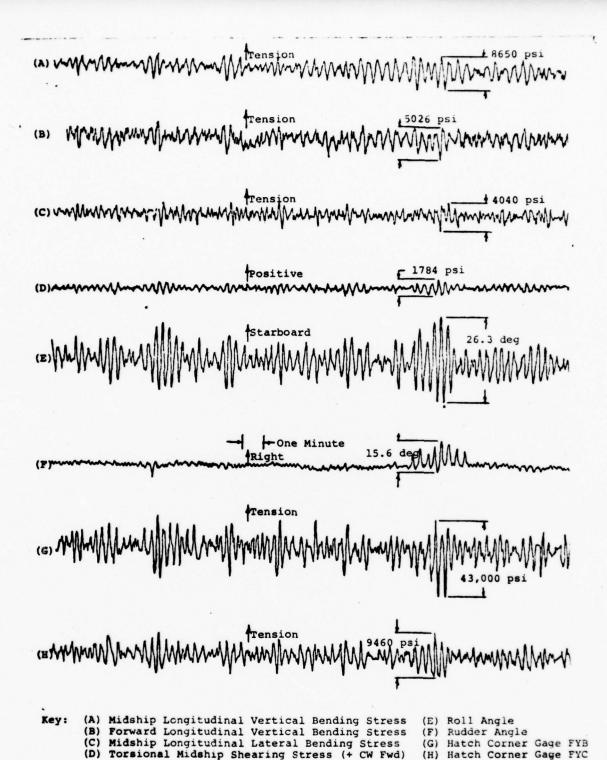


Figure 10C. AVERAGE OF MAXIMUM FyC STRESS WITHIN EACH INTERVAL



ESCURE 11 CAMPLE ANALOG TRACES FOR ONE INSTANT OF SHIP RESPONSE

Figure 11. SAMPLE ANALOG TRACES FOR ONE INSTANT OF SHIP RESPONSE TO QUARTERING SEA WITH 3-5 FOOT WAVES AND SWELLS.

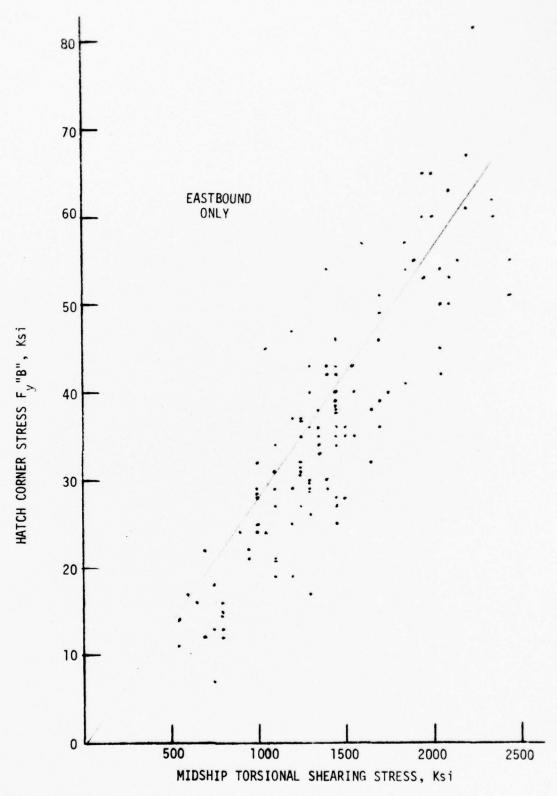


Figure 12A. MAXIMUM F B STRESS WITHIN EACH INTERVAL VERSUS THE MAXIMUM TSM STRESS WITHIN THE SAME INTERVAL FOR EASTBOUND PASSAGES

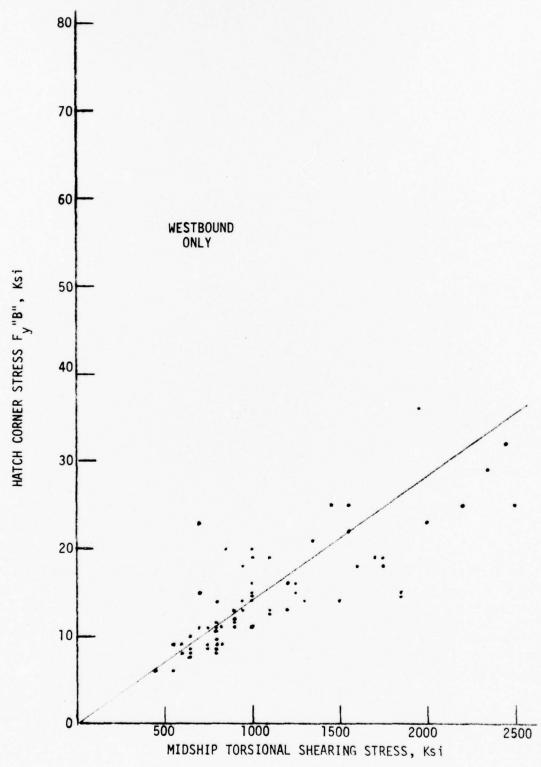


Figure 12B. MAXIMUM F B STRESS WITHIN EACH INTERVAL VERSUS THE MAXIMUM TSM STRESS WITHIN THE SAME INTERVAL FOR WESTBOUND PASSAGES

Voyage 61 East Index 12 "D" Mode

Recorder #1

VERTICAL BENDING

Tape #223

HORIZONTAL BENDING

ROLL

PITCH

Recorder #2

VERTICAL BENDING

Tape #224

R2 A,B,C

Hatch Corner - FR. 290

Fy A,B,C

 AR_2 A,B,C

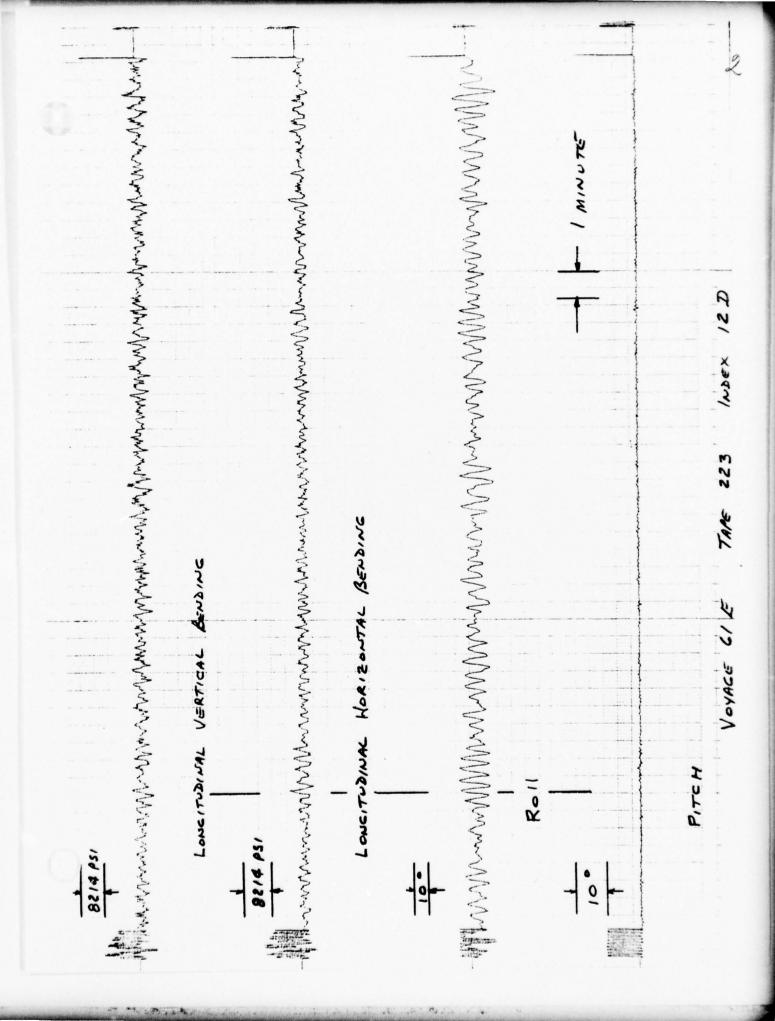
Hatch Corner - FR 144

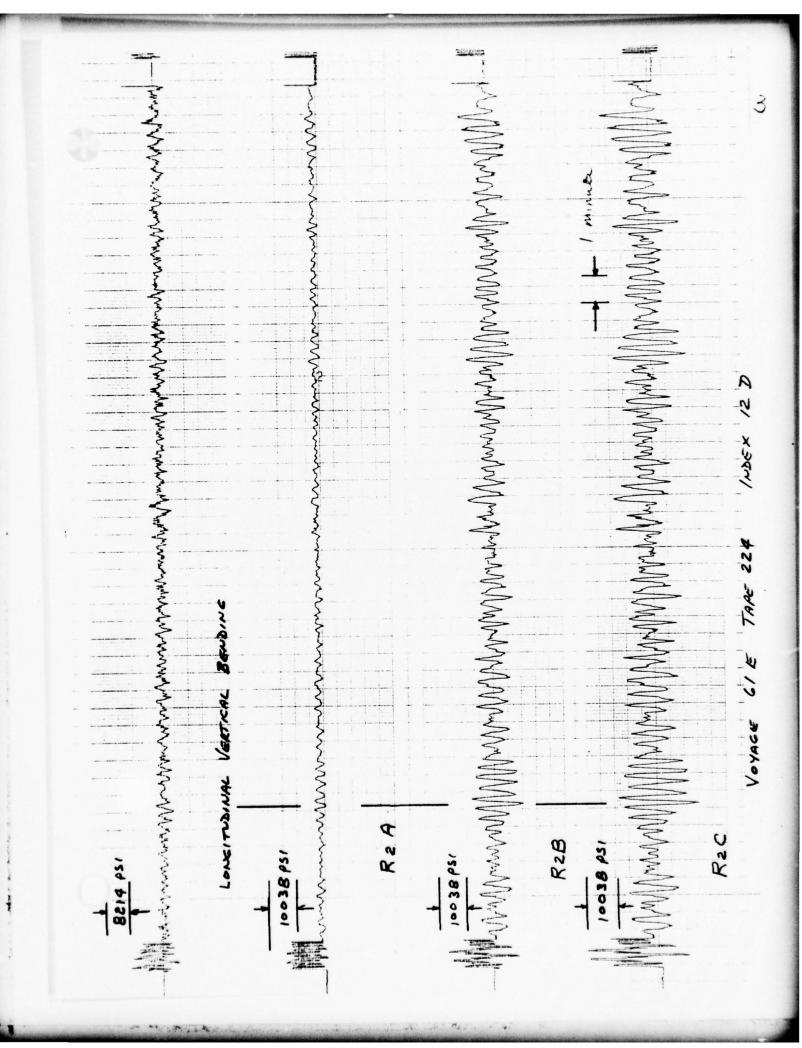
Sy A,B,C

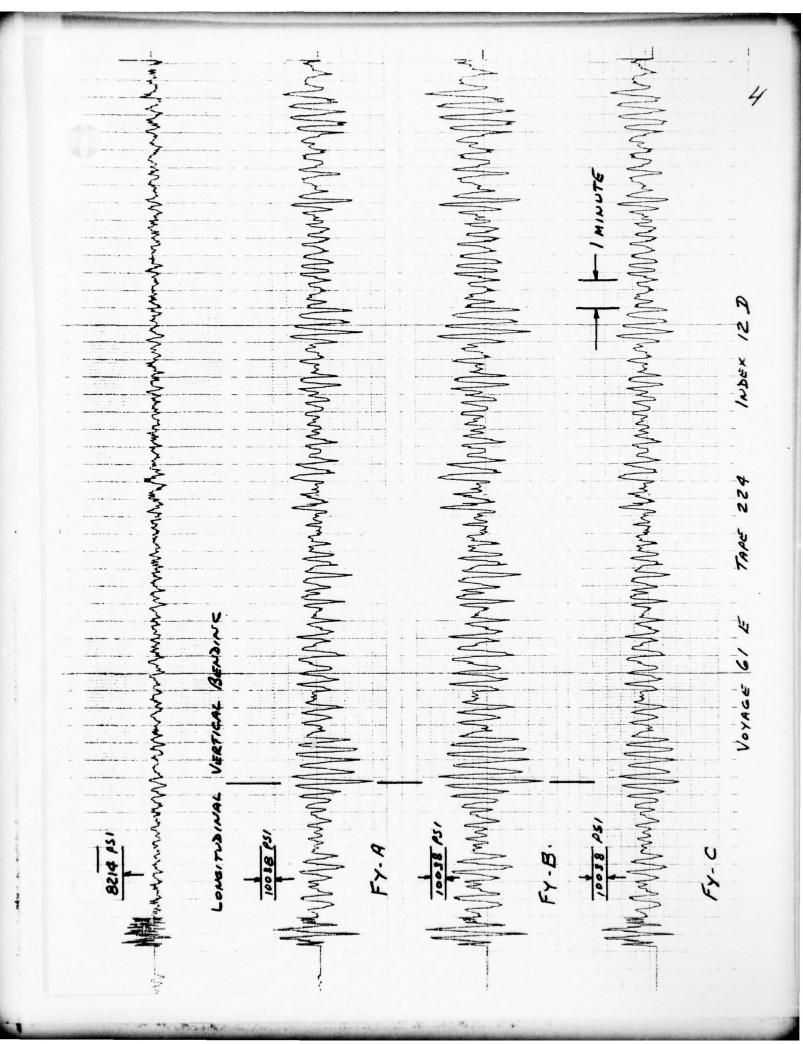
Note: Reference lines denote instant of largest hatch corner stress recorded in interval.

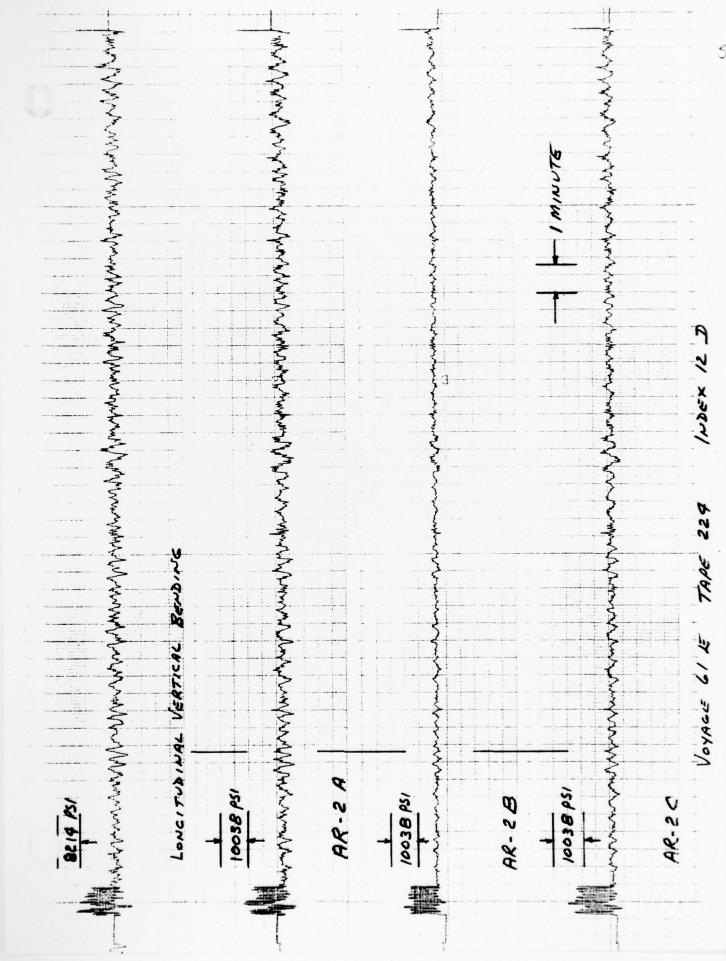
Figure 13

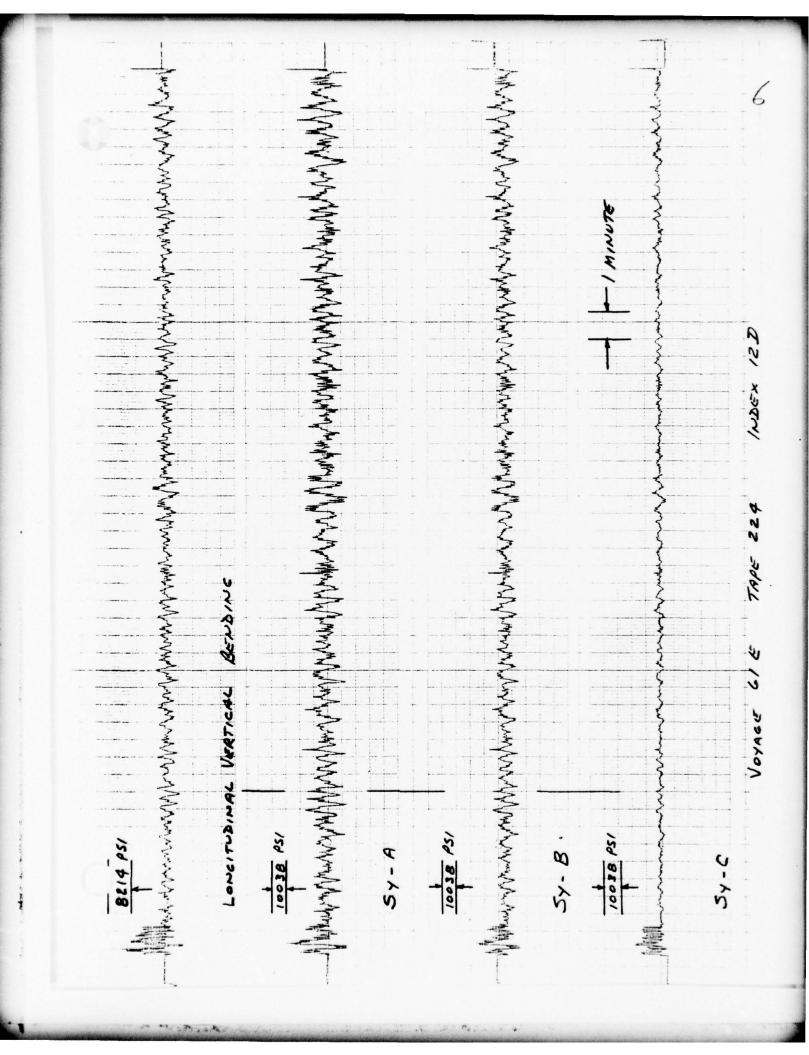
SAMPLE ANALOG TRACES FOR HIGH HATCH CORNER STRESS-QUARTERING SEAS











Voyage 61 West

Index 31 "D" Mode

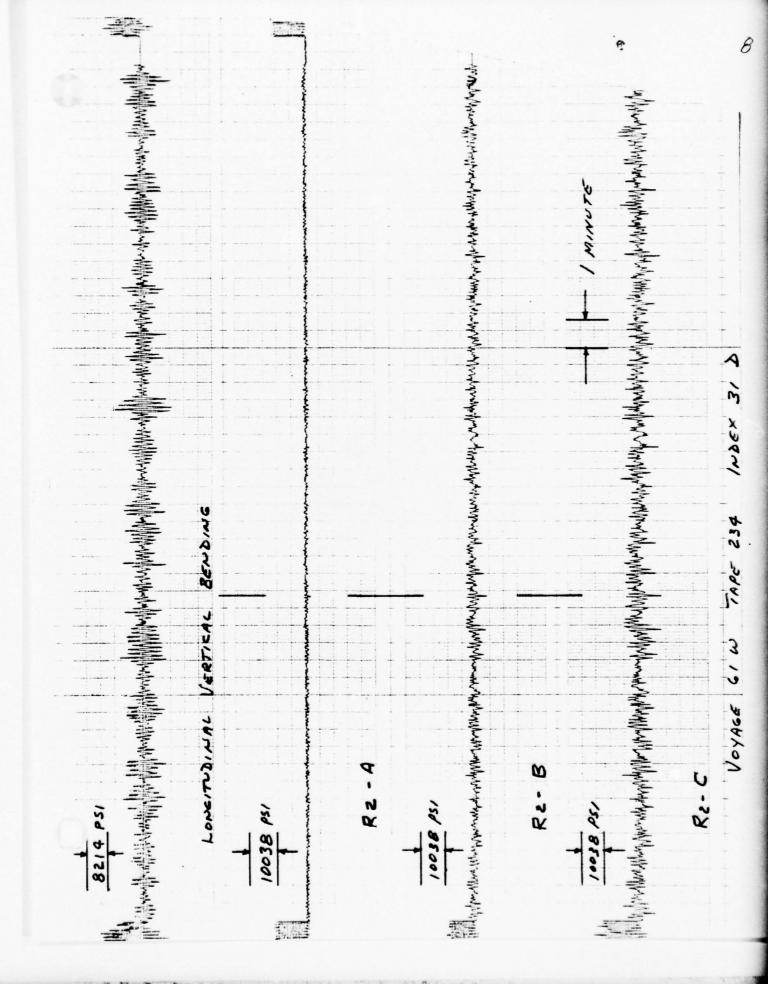
Recorder #1	VERTICAL BENDING
Tane #233	HORIZONTAL RENDI

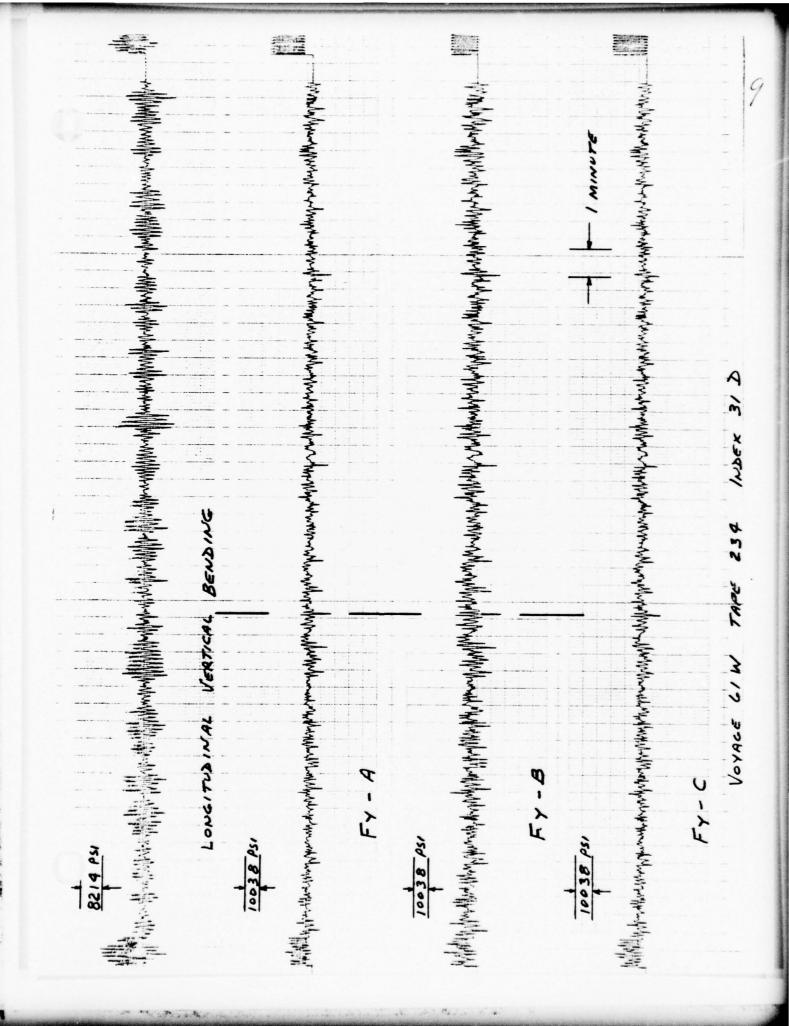
ape #200	HOMIZONINE BENDING
	ROLL
	PITCH

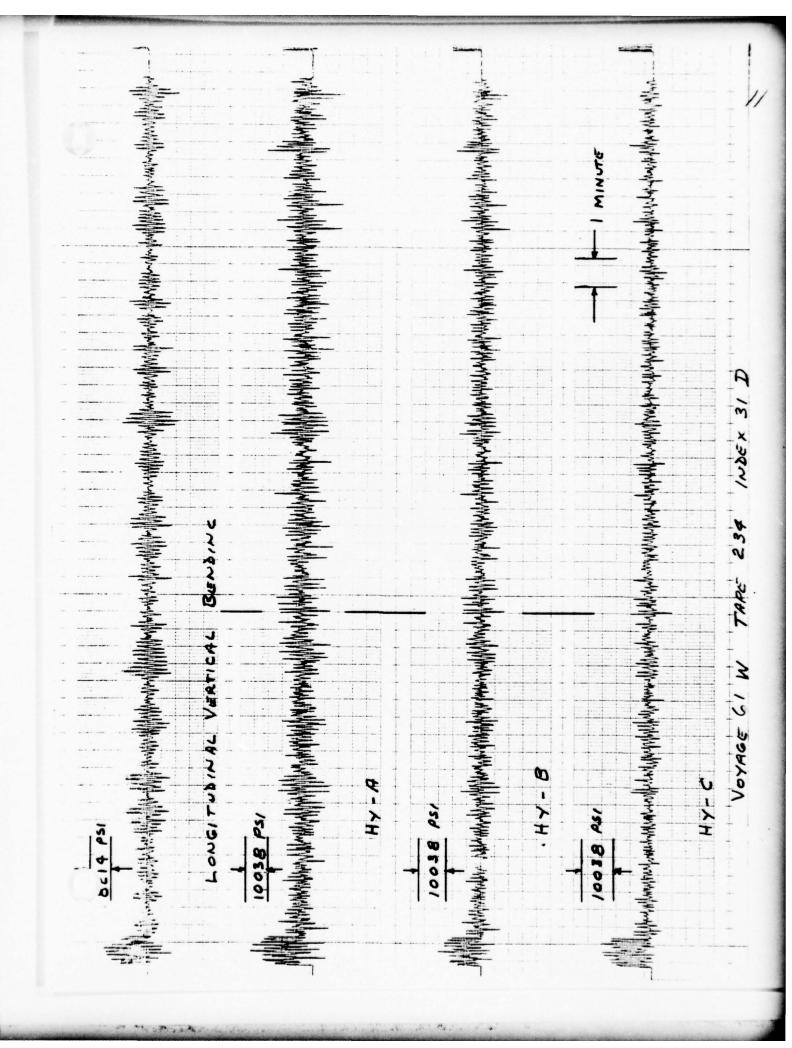
Recorder #2	VERTICAL BENDING
Tape #234	R ₂ A,B,C Hatch Corner FR 290 F _y A,B,C
	R A,B,C Hatch Corner FR 258

Note: Reference lines denote instant of largest hatch corner stress recorded in interval.

Figure 14
SAMPLE ANALOG TRACES FOR HIGH HATCH
CORNER STRESSES-BROAD-ON-THE BOW SEAS







Voyage 61 West Index 31 "A" Mode

Recorder #1

VERTICAL BENDING STRESS

Tape #233

HORIZONTAL BENDING STRESS

ROLL ANGLE

PITCH

Recorder #2

VERTICAL BENDING STRESS

A - 1-6

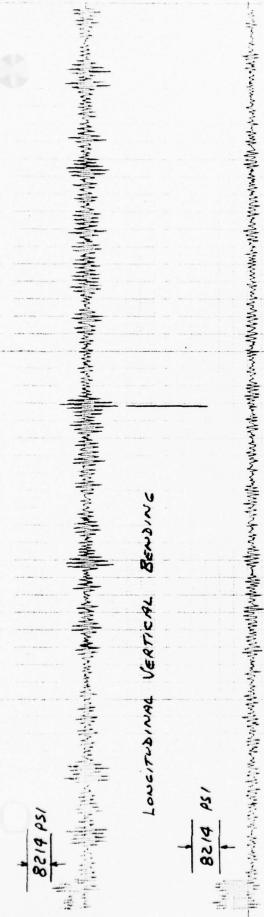
Bow Sideshell

B - 1-6

Reference lines denote instant of largest bow gage stress recorded in interval. Note:

Figure 15A

SAMPLE ANALOG TRACES FOR HIGH SIDESHELL STRESSES-A MODE







120cx 31 A TAPE 233 VOYAGE CILL

The sales of the s

Voyage 61 West Index 31 "B" Mode

Recorder #1

VERTICAL BENDING

Tape #233

HORIZONTAL BENDING

ROLL

PITCH

Recorder #2

VERTICAL BENDING

Tape #234

C 1-6

Bow Sideshell

B 1-6

Note: Reference lines denote instant of largest bow gage stress recorded in interval.

Figure 15B

SAMPLE ANALOG TRACES FOR HIGH SIDESHELL STRESSES-B MODE

Voyage 61 West Index 31 "C" Mode

Recorder #1

VERTICAL BENDING

Tape #233

HORIZONTAL BENDING

ROLL

PITCH

Recorder #2

VERTICAL BENDING

Tape #234

C 1-4

A 1,2,5,6

Bow Sideshell

B 1,2,5,6

Note: Reference lines denote instant of largest bow gage stress recorded in interval.

Figure 15C

SAMPLE ANALOG TRACES FOR HIGH SIDESHELL STRESSES-C MODE

Tucker WaveMeter Output

Meter Output

Meter Output Positive Time Ocean Wave Height Radar (Slant Range) One Minute Radar Vertical Acceleration Radar Transverse Acceleration promoteron CAL Interval

Figure 16. TYPICAL ANALOG TRACES OF DATA REQUIRED FOR WAVE HEIGHT DETERMINATION (RECORDER NO. 1, TAPE 233, INDEX 1A)

Pitch Angle

Roll Angle

APPENDIX A

LISTING OF ENVIRONMENTAL CONDITIONS AND LONGITUDINAL VERTICAL BENDING STRESS FOR EACH DIGITIZED THIRD SEASON INTERVAL

This appendix is a result of the TAB program, a part of the process of preparing digital library tapes. The column headings and listing are generally self-explanatory. Note, however, that all the azimuths are measured in degrees and relative directions are measured with zero as the vessel heading. The column labeled "Sea State" lists the Beaufort Number observation. Note also that the stresses listed refer only to the wave-induced or first mode components.

The listing, as used here, serves two purposes; first to list the various combinations of environmental conditions encountered and second to list the various LVB stress levels generated by these conditions. It is expected that the listing will be used to locate specific intervals of interest for further data reduction by investigators.

SER LAND MCLEAY 1475 STASSING STANDER TARE LYSS MIGSHIP TRANSOUCER

SEA LAND MCLEAN 1975 SEASON SUMARY TAPE LY3S MIDSHIP TRANSDUCER PAGE 13

139 -682 5 ROLLING 10 STBD -4 . P-TO-T AUNDER
STRESS OF
PSI BUPSTS COMMENTS 603 761 -616 503 593 -638 154 0 1142 1032 878 1032 CYCLES STRESS STRESS CYCLES STRESS PSI 0 0 695 821 139 0 0 0 0 103 1105 3032 2 99 3544 0 3233 12 1300 2005 0 3449 1325 35.00 1112 578 *107 2951 2548 3615 2219 1530 505 1347 1523 5001 3323 4313 1913 5435 6225 3544 1054 1360 SHIPS PROP WIND WAVE PO SWELL LENGTH SEA CCURSE RPH DIR DIR SECS DIR FEET TEMP WEATHER 10 65 FT CLUY 1330 030t 66 PT CLUY 123P 08CC 43 PT CLDY 001 16280 040 135P 08CG 40 PT CLTY 135P 080C 46 PT CLUY 004 10295 040 135r 0800 65 FT LLOY 135P 0600 e5 PT CLOY 003 10269 046 1352 080C us PT (LUY 003 10289 046 133P OUCE 60 PT CLLY 364 16281 C51 10262 349 123P 0800 43 PT CLDY 001 10280 040 9000 43 PT CLDY 123P 380C 43 PT CLOY SO PT CLOY SWELL BARUM AIR
HT INCH TEMP
FEET MG 10781 051 1350 0800 P 080C 1336 0400 1330 0866 400 1359 LONGITUDE SHIPS SEA REL MANEMANE
SPECO STATE SPEED FEET FT
KTS KNOTS 0 130.5 090P 090P 451541271 005 01-17-75 37-05 1 Jos 127-4 1339 1339 3349 591 18 20.16 001-54 # 31.0 07 30 03 127.4 133P 133P WELER-201 005 31-17-75 37-00 " 059-54 M 31-0 01 33 133P 359: 20 30 30 #CLEANZOI GOS 01-17-75 57-06 .. 0990 126-0 112P 112P 03 378 130.0 055P 055P 15 01 11.7 04 15 01 070 130.0 055P 055P 31.9 US 20 03 WCLEARAN 00% 01-17-75 31- 0 00-04 k 1949 06 25 03 #CLEAN201 004 01-17-75 37-06 4 310 127-0 135P 135P 59E 14 160U JUNESH M 30.9 06 25 03 4251 4251 6.721 64, 1354 033 078 130.0 USSP 055P . 181 . 187. LATITUME 2 96-12 may 461-545/201 GD6 - 01-17-15 - 5400 - 559 *CLEAN201 00% 31-17-15 ... 15-5 ... 4CLEAVADI 005 01-17-15 31-10 1 66.23 # 25 WCLEA4201 003 01-17-75 59! 12 14-75 46.644231 302 31-17-75 596 05 31-17-75 MCLEAN201 002 01-17-75 VCL 6 1 2 2 1 - 11 - 15 0:30 MCLEAN201 002 01-17-75 0400 ACLES 7231 005 01-17-75 4CLEAV201 305 31-17-15 ANALOG LCGBOUR TAPE TAGEK NUMBER NUM CATE TRIP INTERVAL

SEA LAND MOLEAN 1975 SEASON SUMMARY TAPE LV6S MIDSHIP TRANSOUCEP PAGE 26 SEA LAND MCLEAN 1975 SEASCH. SUMMARY TAPE LVOS MIUSHIP TRANSDUCER PAGE ZA

ASLLING EASILY 0 798 ROLLING EASILY 5 ACLLING EASILY RULLING CASILY 0 735 STRESS PSI 733 +511 1232 848 820 739 1052 660 739 709 BURSTS COMMENTS 304 1010 CYCLES STRESS STRESS
CYCLES STRESS STRESS 735 --- NAVE IND-- 1ST MODE 827 527 103 1120 O 703 0 776 0 P-TO-T NUMBER STRESS OF PSI BURSTS 7346 2 31, 34,33 6 5332 3423 4313 3303 3054 2622 4115 2906 3947 4108 2592 2380 2863 8739 7105 7492 11528 5031 7126 4643 5771 6190 7653 4732 9360 7719 7397 1. 19 29 9 25 47 REL SWELL SWELL LENGTH SEA SIR FEET TEMP WEATHER. 036 13311 557 56.57 10311 057 CLEY 9 020C 70 PT CLOY 70 PT CLOY 135P 000C 05 PT CLUY 5 PT CLDY 354 65 PT CLLY 65 PT CLOY 10208 US2 10301 050 004 10301 U50 10301 050 135P 06CC 67 UCAST 005 10256 052 CC 67 0CAST 135P 080C 67 GCAST 005 13288 052 SWELL BAROM AIR HT INCH TEMP FEET HG 10202 049 05.00 65 PT 60C 65 10342 35 135P 080C 63 10302 135P JBCC 004 103C 1359 0500 135P 0800 135P 080C 135P 080C 0800 135P Jacob 135P 0300 135P 060C 400 900 900 900 135P SEA REL MAVEMAVE
STATE WIND HT LENG
SPEED FEET FT REL REL WAVE MIND WAVE PD DIR DIR SECS 03 23 24-17-75 37-06 N 0-54 W 30.0 07 30 03 03 03 03 03 03 03 03 00 0 03 03 3 - MCLEAN201 010 01-14-75 36-54 N 030 127.3 050P 030P 050P 055-13 N 31.0 07 30 N MCLEAN2D1 005 01-17-75 37-06 N 090 126.0 112P 112P 59E 24 2400 049-54 W 30.0 07 30 0 #CLEAN2CI 339 01-10-73 37-06 4 340 120.6 135P 135P 40LEAVELL 010 UL-18-75 36-54 : 050 127.3 050P 090P 461E44201 007 01-10-75 37-36 N 090 125.7 112P 112P 30 0 59E 27 0400 0400 009-54 M 29.8 07 30 0 5 57-06 N 090 127.0 135P 135P 06.00 069-54 M 30.9 07 30 0 5 37-0c 1 0.0 126.6 135P 135P 135P 135P 120C 120C 109-54 R 50.6 07 30 C 390 126.6 135P 135P 4CLEAN201 030 01-18-75 57-06 N 390 127.0 1352 135P *JEANZUI 003 01-10-75 37-06 004-5+ % 30.5 07 30 35P 135P 050 125.7 112P 112P 390 127.0 135P 135P 090 125.7 112P 112P MCLEANZOL 007 01-10-75 37-06 N 090 125.7 112P 112P 112P 55E 20 0400 069-54 M 29.8 07 30 30 10 SHIPS PROP マントミカンとの1 00c 01-14-75 37-06 A 369-147 30-9 MCLEAN201 307 31-18-75 37-36 N 390 12: 1200 069-54 W 50.6 LONGITUDE SHIPS SPEED KTS HCLEAN201 007 01-18-75 37-06 N. 059-5 LATITUDE TIME 401EAV201 609 01-18-75 59E 36 12 10(51,201 009 01-10-75 598 33 12 50 -14-75 DATE TRIP INTERVAL ANALOG LCGGOOK VCL FANZOI 00E NCA ACL EAN201 036 INDEX 365 NUMBER

1003 1303 725 673 87; 763 820 165 651 800 154 769 SUESTS COMMENTS 920 434 SEA LAND MCLEAN 1975 SEASON SUMMANY TAPE LVBS MIDSHIP TRANSDUCER PAGE 33 STRESS STRESS PSI PSI 395 1018 100 1362 717 ---MAVE IND-- 1ST MODE 1098 151 1127 961 366 1120 1237 1104 1831 196 928 P-TO-T NUNBER STRESS OF PSI BURSTS 14 10 11 7426 19 13 16 6330 7094 3479 3754 4160 3034 3024 4000 4013 3895 5230 4775 3991 3801 11821 4035 3889 3933 1056 7830 8254 9853 5553 \$232 10293 9521 1196 1116 9111 7735 3291 NUMBER 53 40 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER 103+2 051 1251 0600 50 PT CLOY 006 03016 557 10311 057 0 50 PT CLDY 03016 557 04 DCAST 10342 051 135P 360G 64 PT CLOY 1251 0600 50 PT CLUY 006 03016 557 0 50 PT CLDY 03016 557 . CCAST 053 CCAST 053 64 CCAST 2 C49 64 0CAST 2 049 10331 053 10322 049 0 64 UCAST 125P 0500 04 CCAST 008 10322 049 SWELL BAROM AIR HT INCH TEMP FEET HG 10311 057 40 10331 10324 10322 10331 1251 0600 0301 1251 0600 125P 06.00 008 1032 1359 0600 0000 305 1 125P 0600 003 1 125P 3600 006 1 125P 0600 008 1 125P 0600 006 1 125P J666 1252 0600 900 300 900 1250 LUNGITUDE SHIPS SEA REL MAVEANE SPEED STATE MIND HILENG KTS SPEED FEET FT KNUTS SHIPS PROP WIND WAVE PO COURSE RPM DIR DIR SECS 03 040 90 90 40 04 0 0 9 8 94 0 90 5 01-16-75 55-54 35-18 30 126.7 125P 125P 1256 36-54 N 089 126.7 125P 125P 2400 035-18 N 30.6 07 50 0 33.6 36.7 3350 1252 36.6 126.7 035P 125P ACLEAN201 012 01-18-75 36-54 3 030 126-7 1259 1259 055-10 8 30.6 07 30 0 055-16 K 31.0 07 30 C 35-54 N 090 127.3 090P 090P 055-16 W 30.9 07 30 05 MCLEAN201 011 01-16-75 36-54 N 090 127-0 125P 125P 59E 43 30-75 2000 MCLEAN201 01: 01-18-75 34-54 N 303 127.0 125P 125P 59E 44 2000 055-18 N 30.9 07 30 0 MCLEANZOI 012 01-10-75 36-54 N 055 126-7 125P 125P 255P 055-15 N 50.0 07 50 0 080 120.7 035P 125P MCLEARZOI 015 01-19-75 26-54 N. 35c 120-7 0359 125P MCLEAN201 011 01-18-75 36-54 N 080 127-0 125P 125P 25P 59E 42 2000 055-18 N 30-9 07 30 0 57 SEA LAND MCLEAN 1975 SEASCH SUMMANY TAPE LVOS MIDSHIP TRANSDUCER PAGE 3A 36-54 N 380 120-0 125P 90 30.00 HCLEANZEL 015 01-19-12 30-24 0 055-10 1 30-#CLE44201 013 01-19-75 36-54 N 08 401544201 013 01-19-15 35-54 N 055-18 N 4CLEAN231 011 01-18-75 36-54 N 59E 41 2000 05 LATITUDE 15 36-54 11 TIME 4CLEAN.2G1 014: 01-19-75 ACLEAN 201 010 01-18-75 WCLE4W2G1 014 01-19-75 4CLEAN201 010 01-18-75 4CLEAN201 012 01-10-75 DATE TRIP INTERVAL 14 ANALOG LCGBUOK 4CLE2 \201 012 NON 365

1853 1332 1920 0 53 -155 95--173 BURSTS COMMENTS 50--133 SEA LAND MCLEAN 1975 SEASUN SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 40 NUMBER RMS MAX CYCLES STRESS STRESS PSI PSI ---- IST HCDE 0 010 864 O 0 793 0 1110 0 0 P-T3-T NUMBER STRESS OF 2841 4142 4445 4350 3515 3737 3317 3736 3175 4592 4148 2714 3854 3448 3582 63 7433 7429 9073 6259 8137 7532 3193 8056 7517 6633 8535 1988 101 7463 0605 57 19 REL SWELL SWELL LENGTH SEA DIR FEET TEMP MEATHER 10373 CAL 62 PT CLCY 3 054 125P C6CC 62 PT CLCY 005 10352 055 2 PT CLOY 055 10373 054 10373 054 10373 054 CLOY C 62 PT CLDY 10362 055 52 PT CLUY 04 PCAST 63 CCAST 3 055 64 OCAST 0 63 CCAST 10363 055 0 63 CCAST 0 63 GCAST 10363 055 BAROM AIR INCH TEMP HG 103+2 051 10362 055 10.192 655 125P 0600 02 005 10362 0 10342 10373 10303 125P G6CC 125P 0600 0000 10 0000 0 125P 3000 005 1 125P 0600 005 1 125P 0000 005 1 125P 060C 005 0 2000 P 125P 0AGC 0000 SWELL 900 500 1256 1250 125p 1256 125P 1259 LINGITUDE SHIPS SEA REL MAVEANVE SPEED STATE WIND HI LENG KTS SPEED FEET FT KNOTS REL REL MAVE MIND WAVE PD DIR DIR SECS 0.2 03 03 085.0 057P 057P 03 20 041-33 / 20.2 082.1 057P 057P 03 080 083.0 125P 125P #CLE4N203 31c 01-19-75 36-2c N 080 303-0 057P 057P 057P 59± 03 10 02 0-1-33 W 20-3 03 10 02 02 5720 000 083.0 057P 057P 055-13 # 30.7 06 25 0 C83.3 125P 125P 057P 0.2.7 057P 057P 0578 002.1 057P 057P 083.3 0579 0579 050 126.8 125P 125P 041-33 W 20.3 06 25 0 50 25 10 SEA LAND MCLEAN 1975 SEASC". SURMARY TAPE LUKS MIDSHIP. TRANSDUCER PAGE 4A 38-25 N 041-53 K 20.5 053.0 057P 383.3 057P 002.7 057P 03 SHIPS PROP 79.67 030 080 2000 541-33 W 20.0 57 01-19-75 33-25 N 041-35 W 2043 57 1200 041-33 N 20.2 36-54 4 35-18 4 35-7 041-33 A 20.3 7.07 000 041-33 × 1 35-26 N 03 1000 041-33 c C41-33 A 941-35 c FCLEIN201 015 01-19-75 34-26 N 59E 60 1200 041-33 P MCLEAN201 214 01-19-75 30-54 N 55-13 35-26 N 1603 LATITUDE 38-26 N 1230 04 4000 3017 01-19-75 35-26 % MCLE14203 317 01-19-75 35-26 4 2030 35-26 1 30-70 % 2400 30-20 N T.MS MCLEAN201 014 01-19-75 3 *CLE44203 010 01-19-75 MCLEMN201 015 01-19-75 59E 58 120 YCLEAN203 016 01-19-75 ACLEAN203 016 01-19-75 *CLEAN203 JIO 01-19-75 ACLEANZOL 315 01-19-72 *CLEAN233 317 01-19-75 59E 66 2 #CLE4%233 010 01-19-75 -CLEAN203 017 01-19-75 DATE TRIP INTERVAL 200 02 10 34 ANALCG LCG3COK NOEX NOW MCLE41:201 015 NUMBER

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-103 -184 -214 -206 -103 -126 BURSTS COMMENTS -74 CYCLES STRESS STRESS CYCLES STRESS PSI --- NAVE IND-- 1ST MCDE 699 0 0 0 2 o 0 P-TO-T NUMBER STRESS OF PSI BURSTS 7215 2737 3523 2978 3743 3354 3537 3758 3935 2996 2643 7105 4954 7,92 1958 6625 8627 19 63 REL SWELL SWELL LENGTH SEA OIR FEET TEMP WEATHER 00 60 PT CLOY 10411 055 10389 055 10349 055 10369 055 10389 055 10411 055 10411 055 CC 57 OCAST 10392 055 125P 0600 57 UCAST 005 10392 055 SWELL BARON AIR
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ROLLING IN 6 IN BEAN FOLLING IN 6 IN SEAN STRESS -1207 SURSTS COM 4ENTS -1273 -1222 -1324 -1324 CYCLES STRESS STRESS CYCLES STRESS STRESS PSI PSI --- HAVE IND-- IST MODE P-T3-T NUMBER 3045 2613 2647 2574 2583 2500 2228 53.25 2404 2721 2228 3039 2515 2334 2054 2723 6332 5199 1495 6009 +17+ 5200 5035 5729 6185 4005 5413 0609 4503 5540 15 05 73 80 95 80 15 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER ST PT CLUY 0. 57 PT CLDY 10444 054 117P 0600 57 PT 610Y 036 10443 054 57 PT CLOY 56 CLEAR 1 053 56 CLEAR 10 57 CLEAR 10423 057 117P 0600 50 CLEAR 006 10449 054 0 58 CLEAR 10449 054 10449 054 117P 0600 58 CLEAR 005 10449 054 117P 3603 57 CLEAR 006 10423 057 117P 0600 56 CLEAR 006 10451 053 117P 0600 56 CLEAR INCH TEMP 0666 57 91 36 1344+ 054 13444 054 SHELL BAROM AIR 10451 10451 10445 117P 0600 1044 1172 3600 1045 117P 0600 036 1049 0000 10 117P 0600 006 10 117P 3500 1179 3600 117P 065C 1178 0630 FEET LONGITUDE SHIPS SEA KEL MAVEWAVE SPEED STATE WIND HI LENG-KTS SPEED FEET FT REL REL MAVE
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LATITUDE COURSE RPM DIR DIR SECS 0135 3185 02 01 0135 10 10. 013S 02 01 2 013 0135 031-26 N 17.4 02 05 01 031-26 W 17.2 01 02 01 10 02 0185 331-26 11.4 32 65P 162P 0 0185 070.6 0185 0185 32 0.5 0.5 70 32 0 10 27.2 216 HCLEAN203 024 01-20-75 39-50 N 072 070-2 595 36 2400 031-25 H 17:1 01 MCLEAV.203 025 01-21-75 39-50 : 031-26 4 17.2 010.4 401 E 5 4 2 5 6 1 - 21 - 75 39 50 N 372 070.4 59 5 36 060 031 - 20 4 17.2 01 7000 54.203 025 01-21-75 39-50 1. 031-26 4 17.2 01 072 070.2 w 17.1 01 10 #CLEMI203 024 01-20-75 39-50 N 072 070-2 031-26 W 17.3 01 VCLEKN203 023 01-20-75 39-50 N 072 070,7 01 59€ 32 2000 021-26 M 17.3 01 #CLEAN203 024 01-20-75 39-50 N 072 070-2 59: 59: 34 2400 031-20 1 17:1 01 4CLEAN203 023 01-20-75 39-50 N 372 370.7 59E 31 2000 4€LE1N203 023 01-20-75 39-50 N 031-26 M 17.3 0 #CLESU203 022 01-20-75 39-50 N 072 070 59E 28 18-00 MCLEAN203 024 01-20-75 39-50 N 07. 4CLEAN203 023 01-20-75 39-50 N 330 59E 30 2000 MCLEAN203 022 01-20-75 39-50 1 ACEEAN203 02.5 01-21-75 39-50 N 39-50 4 #CLEAN203 040 01-21-70 39-50 N 4CEEAN203 026 01-21-75 35 DATE TRIP INTERVAL ANALOG LEGBUCA TAPE INDEX NUM3ER

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BURSTS COMMENTS -2119 -2153 -2227 SEA LAND MCLEAN 1975 SEASON SUMMANY TAPE LVBS MIDSHIP TRANSOUCER PAGE 78 CYCLES STRESS STRESS ----- IST MODE 0 0 HAX P-TO-T NUMBER STRESS OF PSI BURSTS 2750 25,00 5413 2663 1949 2500 2893 2773 2287 2344 . 2692 2333 2500 2706 2604 7173 4633 4354 \$105 57.57 5200 5019 4339 4553 +972 1053 5715 9419 5457 3341 80 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER JO432 059 117P 0630 57 PT CLOY 117P 063C 57 PT CLOY 117P 060C 55 PT CLUY 006 10432 059 117P 0600 55 PT CLUY 006 10432 059 00 55 PT CLOY 10432 055 13400 057 117P 060C 55 CC4ST 005 10430 057 10430 057 10400 057 1170 0600 50 CC457 005 10391 050 00451 SWELL BARON AIR HT INCH TEMP FEET HG 10443 054 16391 050 10271 050 10353 656 10443 054 10353 656 117P 0600 55 1176 0600 1179 0600 1179 0000 0050 0 117P 060C 1179 0600 1179 0600 0630 500 900 500 1172 LUNGITUDE SHIPS SEA REL MAVEMAVE
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8 501 BURSTS COMMENTS 377 131 211 750 175 175 133 160 853 339 375 817 861 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 88 NUMBER PMS MAX CYCLES STRESS STRESS PSI PSI 0 --- MAVE IND-- 1ST MODE 0 0 0 0 0 0 P-TG-T NUMBER STRESS OF PSI BURSTS 2677 3933 2836 3174 3093 2750 3911 3422 3106 2833 3312 3772 3502 3305 2911 3093 8743 7274 0129 9712 6969 7034 5655 30.30 7143 6092 7551 7633 9350 5844 7232 6833 75 83 32 REL SWELL SWELL LENGTH SEA OIR FEET TEMP WEATHER 10312 057 50 5CAST 10312 057 10283 650 10243 056 C 56 CCAST 10312 057 54 OCAST 10263 056 10233 USe SE CCAST ShELL BAROM AIR HT INCH TEMP FEET HG 050C 55 CC 10353 056 000 10267 55 10267 050 162P 050C 55 005 10251 0 10312 10251 1172 0600 162P 060C 005 102 P 36CC 005 10 2090 10 162P 050C 162r 060C 2090 162P 060C 152P 000C 162P 060C 3600 144P 060C 900 900 900 1627 1629 1446 LONGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HT LENG KTS SPEED FEET FT KNUTS SHIPS PROP WIND WAVE PO COURSE RPM DIR SECS 02 32 02 05 02 05 3 064.7 173P 173P 5 WCLEAN205 032 01-22-75 42-00 N 072 064.7 162P 162P 505 05 59E 05 05 20 02 WCLEA1205 331 01-22-75 42-30 022-51 072 064.7 162P 162P 02 42-00 N U12 064.7 1622 1629 0400 322-51 N 15.8 95 20 02 ACLEAVZOS 052 01-22-75 42-30 N 072 064.7 162P 162P 020 02 535 07 0630 020 02 004.7 162P 152P MCLEAN203 030 01-21-75 42-00 N 072 005.9 1755 1755 50 0 59E 00 24-00 172 304.7 173F 173P 1600 43-55 h 14-42 h 15.7 064.2 133P 133P MCLEAV205 03+ 01-22-75 +3-55 N 054 06+2 135P 133P 55 0 MCLEANZOS 351 01-22-75 42-00 N 072 064.7 162P 162P 55P 59E 01 6400 964.7 162P 162P WCLEAN205 033 01-22-75 43-55 1, 072 064.7 1739 1739 014-42 # 15.8 07 30 0 014-42 4 15.0 004-7 173P 173P MCLEAT205 034 01-22-75 43-55 N 054 064.2 153P 133P 53P 55 C 55 E 13 1600 014-42 W 15.7 06 25 C 50 50 90 50 03-22-75 42-00 N 072 06-WCLEAN205 633 01-22-75 43-55 / 014-42 N 15.8 4CLEAN203 032 01-22-75 42-00 1, 074 00 59E 08 08 050C 022-51 W 15-8 014-42 # 15.6 272 DATE LATITUDE 401647.205 333 01-22-75 47-55 N 1230 43-55 N 11.3E MCLEAN205 031 .1-22-75 MCLE41205 034 C1-22-75 59E 14 1600 ACLEAN205 033 01-22-75 595 11 120 TRIP INTERVAL 05 ANALCG LCG30CK MCLEAN 205 031 INDEX NUMBER

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	01-23-75 42-55 % 054 054-2 1442 144P	0000 00135	7610 0 0 0

SEA LAND MCLEAN 1975 SLASON SUMMARY TAPE LV8S MIDSHIP TRANSDUCER PAGE 103 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LUBS MIDSHIP TRANSDUDER PAGE 10A

0 BURSTS COMMENTS 758 715 736 758 950 715 1 - 5555 195 671 133 700 751 NUMBER RMS MAX CYCLES STRESS STRESS PSI PSI --- HAVE IND-- 1ST MODE 1345 1714 783 337 0 161 P-TO-T NUMBER STRESS CF 4.1 7 313 247 501 3006 2904 3546 3550 909 3137 2736 2597 3130 3093 2367 8040 1895 2011 1138 5428 6143 1451 5517 6256 6807 1123 5771 6070 7778 6705 PSI 1131 215 187 18 4 62 20 186 REL SWELL SWELL LENGTH SEA OIR FEET TEMP WEATHER 10071 055 139P 08CC 51 PT CLDY 005 10071 055 0800 50 PT CLDY 156P 080C 50 PT CLDY 006 10075 050 139P 080C 51 PT CLDY 006 10071 055 0400 51 PT CLDY 006 10071 055 0 52 OCAST 10109 051 139P 0800 52 3CAST 006 10109 051 139P 08C0 52 0CAST 006 10109 051 10109 051 43 CCAST 09883 C44 41 AAIN 10021 041 41 RAIN 09915 C41 41 MAIN 05515 C41 41 APIA 41 nall SWELL BARON AIR
HT INCH TEMP
FEET HG 140 01650 07915 041 139P 0800 1399 0400 139P 080C 0800 900 156P LONGITUDE SHIPS SEA REL MAVENAVE
SPEED STATE WIND HT LENG.
KTS SPEED FEET FT
KNOTS REL REL MAVE MIND MAVE PO DIR CIR SECS 03 . 03 03 02 07 05 05 05 03 02 01 01 01 10 216 119.0 0525 3525 29.0 007-37 W 15.7 03 10 02 0356 4CLEAN205 040 01-23-75 47-20 N 049 064.3 161P 151P 55P 59E 38 10 000-37 H 15.7 03 10 00 007-37 W 15-7 03 10 0 4CLEAN205 040 01-23-75 47-20 N 049 0643 161P 161P 007-37 H 15.7 03 10 00 WELEAN205 039 01-23-75 47-20 N 049 064.9 150P 150P 59E 34 120C 037-37 W 15.8 04 15 0 4CLEAR205 041 01-23-75 47-20 N 066 066.6 156P 156P 5 P 0 007-37 W 16.3 05 20 0 110.0 035P 035P 049 064.9 150P 150P 113.0 035P 035P 007-37 W 15-8 04 15 W 110.0 035P 035P 110.0 0350 SHIPS PROP 20.0 26.3 260 260 LATITUDE MCLEAN205 639 01-23-75 47-20 N 59F 36 12CU 007-MCLE 4N205 040 01-23-75 47-20 N ACLEA: 235 040 01-23-75 47-23 N 59E 39 1600 00 MCLEAN205 039 01-23-75 47-20 N TINE ACLEAY207 005 01-28-75 59% 05 2000 ACLESS 207 004 01-28-75 59# 04 01-MCLE4N207 005 01-28-75 YCLE4.207 005 01-28-75 ACLEANZO7 305 01-28-75 46LEAN207 005 01-26-75 DATE TRIP INTERVAL ANALCG LCGGOOK TAPE INDEX NUKBER NUM 00 165

DROP PILOT CHER3 3050 URGP PIL. T CHERBOURE 0 1959 DADP PILOT CHEPSOUPC DRJP PILOT CHEKBOJAC 1745 406 635 820 BURSTS COMMENTS 1035 1545 -141 1387 105 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVGS MIDSHIP TRANSDUCER PAGE 113 CYCLES STRESS STRESS
CYCLES STRESS PSI PSI ----- IND-- 1ST MODE 732 4325 1336 2218 1064 1279 591 1522 724 1404 2181 NUMBER 916 2573 3120 3045 450 532 1419 3394 414 554 303 362 1523 1249 5033 17.5 57.17 6433 5562 7143 P-TO-T STRESS PSI 6255 1168 1 396 3127 1332 1013 1001 4059 102 1035 3233 128 144 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER 45 PT CLSY 10030 045 46 PT CL 8Y 46 PT CLUY 46 PT CLCY 10030 045 45 CCAST 09883 044 43 CCAST 09883 C44 43 CCAST 09883 044 46 3CAST 10085 048 48 CCAST 10085 048 40 .CAST 10385 643 48 CCAST 10085 048 0600 43 UCAST 5 10070 052 130.70 052 0355 0500 43 CCAST 13078 053 0355 066C 43 0C 005 10070 652 0040 0400 3355 0000 SAELL HT FEET 400 0355 LUNGITUDE SHIPS SEA REL MAVEMAVE SPEED SIATE MIND HT LENS KTS SPEED FEET FT KNOTS SHIPS PROP WIND WAVE PO COUPSE RPM DIR DIR SECS 002-30 W 27.1 C6 25 02 216 119.0 3525 0525 29.0 07 30 01 0 220 126.9 353S 050S 33.9 07 30 01 30.5 JZ6.9 J50S 050S 0 30.9 0505 0505 02 302-33 x 27.1 06 25 32 260 111.2 069F 035S 02 229 131.4 0165 004P 237 129.9 0225 012P 29.0 07 30 0528 257 129.9 0228 012P 237 129.9 3425 312P MCLERAZOT 009 01-29-75 47-54 N 260 111.2 069P 0355 218 119.0 0525 0525 220 126.9 050S 050S 30.9 07 30 237 129.9 022S 012P 30 57 25 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVOS MIDSHIP TRANSDUCER PAGE 11A 10 90 215 22C 223 1200 . 002-30 4 MCLEAN207 010 01-29-75 49-54 N 62-30 H LATITUDE MCLEAN207 009 01-29-75 49-54 N MCLEAN207 009 01-29-75 49-54 N 59 21 1230 T I'NE 2400 0040 VCLEAN207 006 01-29-75 0400 2000 MCLEAN207 009 01-29-75 MCLEAN207 003 01-29-75 59 17 MCLEAN207 006 01-26-75 55# 11 2 ACLEANZO7 000 01-29-75 MCLEAN207 006 01-28-75 MCLEAN207 006 01-28-75 7 01-29-75 MCLEAN207 007 01-29-75 MCLEAN207 007 01-29-75 MCLEAN207 308 31-29-75 MCLEAN207 007 01-29-75 TRIP INTERVAL ANALOG LCGGOCK TAPE INDEX NUMBER NUM 23 MCLEAN207 007

00+-1100 1155 1338 1412 1412 1508 BURSTS COMMENTS SEA LAND MCLEAN 1975 SEASCW SUMMARY TAPE LURS MIDSHIP TRANSDUCER PAGE 128 CYCLES STRESS STRESS CYCLES PSI PSI ---WAVE IND-- IST MODE 3233 2395 3075 3911 3763 5279 3009 3734 4547 4334 2795 4288 3172 2965 7630 3015 4 NUMBER 73 3541 2 1.7 10 20 69 55 61 3024 3053 3007 3350 7920 3557 3357 2099 2795 3257 3584 3726 2923 2832 7410 1109 159 5139 9308 12735 7603 P-10-1 STRESS PS1 11653 6325 7639 7324 5043 8490 8718 6133 117 184 161 0 50 GCAST, FAIN, r50 10119 057 C 56 MC281, KAIN, FC3 REL SWELL SWELL LENGTH SEA DIR FEET TEMP NEATHER 55 0CAST 5 050 2 CCAST 351 10078 053 13078 053 10119 050 0 52 CCAST 10125 051 0 56 CCAST 10129 050 10125 JSD 51 CCAST 10119 CSC 52 LCAST 5 US1 C 52 CCAST 10125 051 C 50 0CAST 10119 053 SWELL BARCH AIR HT INCH TEHP FEET HG 10119 050 10125 10125 10125 3000 44 004P 0600 004P 0600 304P 060C 005 100 2000 000 000 000 0000 0600 4 0042 0000 0046 0600 004P 065C 0046 0000 0690 0048 0000 0000 FEET 900 3135 004P 0046 4500 0165 LONGITUDE SHIPS SEA REL HAVENAVE SPEED STATE AIND HI LENG KTS SPEED FEET FT KNOTS SHIPS PRCP WIND WAVE PO COURSE RPM DIR DIR SECS 229 131.0 004P 004P 03 03 03 03 03 23 03 03 50 03 03 2000 062-30 K 31.9 07 30 0 4CLEAN207 012 01-29-75 49-54 N 229 131.0 004P 304P 2400 49-54 N 229 131.0 004P 004P 2400 0 07 30 0 002-30 W 31.9 07 30 0 2 320P 326P 131.4 018S 004P 131.4 0135 034P MCLEAN207 011 01-29-75 49-54 11 229 131-4 004P 004P 004P MCLEAN201 012 01-29-75 47-54 % 225 131-0 004P 004P 130.3 326P 325P MCLEAN207 0.4 C1-30-75 49-54 N 229 130.3 326P 326P 56P 59W 44 0300 116.2 026P 020P 30 SEA LAND MCLEAN 1975 SEASON SUHMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 12A MCLEAN207 013 01-36-75 49-54 N 229 150.0 0269 598 31.7 07 3 10 07 116.2 MCLEAN207 010 01-29-75 49-54 N 229 131.9 59W 28 1600 1260 41-46 N 225 110 MCLEAN207 012 01-29-75 49-54 N 229 13 31.9 31.1 7.07 332-30 N 31.9 010-25 # 28 3803 -54 , 224 31 3803 -362-30 % 31 LATITUGE MCLEAN207 010 01-29-75 49-54 N 002-31 MCLEAN207 610 01-29-75 49-54 N 59# 27 1600 332 MCLEAN207 015 01-30-75 41-46 N 71.KE HCL CAM 207 012 01-29-75 *CLEAN207 014 C1-34-75 MCLEAN207 011 01-29-75 MCLEAN237 015 01-30-75 DATE TRIP INTERVAL ANALCG LEGEOGK

666--725 -629 -630 650--592 COMMENTS -255 -345 -733 -573 -073 -725 SEA LAND MCLEAN 1975 STASON SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 138 STHESS STRESS
PSI PSI ---WAVE IND-- 1ST NUDE 3349 4014 2595 2450 3039 3263 2950 2005 2706 3703 2550 2523 3453 3340 2292 4364 BURSTS NUMBER 65 69 53 39 25 34 59 00 65 62 3347 4014 3423 3105 3104 0515 3386 4031 2920 3334 3573 3527 3753 3142 4043 3135 7350 6735 9205 3962 10079 11819 8366 P-TJ-T STRESS PSI 6337 6616 7357 4815 9000 8289 11358 7130 NUMBER 175 117 103 173 175 169 163 172 159 172 0185 0600 56 CCAST, KAIN, FGG 006 10119 057 C 56 0CAST, FAIN, FOG 10119 057 0 55 THIN CCAST 10125 055 C 50 THIN OCAST 0185 060C 56 7HIN CCAST 006 10125 055 REL SWELL SEA SWELL LENGTH SEA MEATHER DIR FEET TEMP MEATHER 10125 055 8 PT CLCY 050 3168 0690 57 PT CLDY 055 10175 055 0105 050C 57 PT CLDY 10175 056 10175 056 0650 350 PT CLUY ST PT CLDY SB PT CLDY SS PT CLDY BAROM AIR INCH TEMP HG 1,0251 056 10231 056 10175 0600 500 13213 0185 060C 0185 0600 0105 0600 \$ 660C 2090 0185 0600 0185 0600 0105 0000 2090 SWELL HT FEET 900 900 0108 3105 0105 0105 0165 LONGITUDE SHIPS SEA REL MAVEWAVE SPEED STATE WIND HT LENG, KTS SPEED FEET FT KNOTS REL REL NAVE MIND WAVE PU DIR DIR SECS S 0325 25 02 03 MCLEAN207 016 01-30-75 41-46 N 229 120.9 0415 0415 598 598 49 20 02 01-30-75 41-46 N 229 120.9 0415 0415 0415 1600 01-30-75 W 29.5 05 20 02 01-30-75 41-46 h 224 120.9 0415 0415 0415 120.0 01-30-75 41-45 N 229 120-9 0415 0415 0415 120-9 1600 7 01-30-75 41-46 N 249 131.5 0215 0215 53 2003 016-25 N 32.0 06 25 02 01-30-75 41-46 N 249 131.5 0215 0215 200 25 02 #CLEAN207 017 01-30-75 41-46 N 249 131.5 0215 0215 59# 55 59# 55 2000 010-25 # 32.0 00 25 02 9 152.2 5325 5325 52.7 56 25 52 02 MCLEAN207 017 01-30-75 41-46 N 249 131.5 0215 0215 598 598 56 2000 016-25 H 32.0 06 25 02 5 132.2 0325 0325 32.7 06 25 02 132.2 0325 0325 02 3242 116.2 026P 026P 25.2 07 026P 9 129.2 024P 024P 51.4 04 15 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIR TRANSDUCER PAGE 13A 2400 132.7 132.2 0328 2400 016-25 # 32.7 06 25 129.2 3246 SHIPS PROP 1200 016-25 W 28.2 31.4 010-25 W 51-010-25 × 31. MCLCAN207 018 01-30-75 41-46 4 016-25 7 32 01-30-75 41-46 N 229 MCLEAN207 013 01-30-75 41-40 V 249 59# 59 2400 016-25 A 34 2400 016-25 W LATITUDE 04.30 41-45 N *CLEAN209 019 01-31-75 41-40 V 1146 MCLEAN207 016 01-30-75 MCLEAN209 019 01-31-75 01-30-75 4CLE41207 018 01-30-75 DATE TRIP INTERVAL MCLE4N237 015 3 25 21 24 MCLE43207 016 4CLEAN207 017 ANALGG LOGBCOK TAPE INDEX MCLEAN207 015 MCLEAN207 016 #CLEAN207 017 NO. MCLEAN207 016 NUMBER

2010 7551 319 200 203 410 120 165 304 BURSTS COMMENTS 237 267 304 431 190 631 SEA LAND MCLEAN 1975 SEASON SURFARY TAPE LVBS MIUSHIP TRANSDUGER. PAGE 146 CYCLES STRESS STRESS
CYCLES STRESS STRESS
PSI
PSI
----WAVE IND-- IST HODE 3174 0437 2317 5445 2795 5017 2326 2438 2906 5038 13729 2339 4195 2163 3450 2542 STRESS OF PST BURSTS 60 6154 1.1 63 63 53 20 55 52 65 5114 2433 14792 8 2326 3040 2369 3664 3828 3672 2376 2334 2393 2304 2822 3300 12592 192 2646 5307 5612 8418 5443 6296 6296 8028 7675 3565 19901 6414 157 691 176 170 189 REL SWELL SAELL LENGTH SEA SIR FEET TEMP MEATHER 29 PT CLOY 0105 060C 55 PT CLOY 055 10213 058 0 53 PT CLCY 10213 056 10190 058 PT CLOY 10190 058 10190 058 10138 059 PT CLUY 10138 055 10150 058 0 59 PT CLOY 10136 059 10069 060 10075 045 0 63 1CAST 10075 045 BARON AIR INCH TEMP HG 024P 0500 65 00 026 10075 045 024P 650C 10059 0108 0600 0105 0600 024P 060C 0C5 101 0000 10 0090 0105 0600 0248 0666 005 0000 0246 0600 0000 000 0105 0600 0000 024P 0600 SWELL HT FEET 054b 024P 024P SHIPS PROP WIND WAVE PO COURSE RPM DIR DIK SECS LCNGITUDE SHIPS SEA REL MAVEKAVE SPEED STATE MIND HT LENG ATS SPEED FEET FT KNOTS 02 32 03 4CLEAV209 021 01-11-75 30-30 4 249 130.0 058P 055P 350 031-50 4 31.7 06 35 03 02 4CLEAN209 020 01-31-75 41-46 N 249 130.5 047P 047P 047P 59W 08 08 0800 016-25 W 31.7 06 25 02 ACLEANZO9 022 01-31-75 36-30 N 249 129.5 024P 024P 04 04 57H 16 1600 031-50 N 31.5 08 40 04 122-4 3246 3249 0 01-31-75 41-46 N 249 130.5 047P 047P 07 02 02 02 031-50 % 31.7 08 35 n 0.1-50 4 29.7 35 45 024P MCLEAN269 020 01-31-75 41-46 N 249 130.5 047P 047P 55 0 . 2+9 129.5 024P 024P HCLEAN209 019 01-31-75 41-46 N 245 129-2 024P 024P 59W 03 04-00 015-25 h 31.4 04 15 0 031-50 W 31.7 08 35 0 4CLEAN209 021 01-31-75 30-30 % 249 130.0 053P 050P 50P 59W 12 1200 031-50 % 31-70 06 35 0 047P 129.2 024P 024P 25 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 144 016-25 K 31.7 06 25 MCLEAN209 022 01-31-75 30-30 % 249 120-5 024P U31-50 " 23.7 MCLEAN209 019 01-31-75 41-46 N 249 12 59W 34 0400 016-25 W 31-4 6.2 LATITUDE MCLEAN209 021 01-31-75 36-50 N 59W 09 1200 031 HCLEAN209 021 01-31-75 36-30 N 2000 HCLEAV203 020 01-31-75 41-46 N 401234209 022 01-31-75 30-30 0 MCLEANZON 023 01-31-75 30-30 ". TINE MCLEAN209 023 01-31-75 CATE TRIP INTERVAL LCGBCOK MCLEAN 209 020 ANAL CG TAPE NUMBER

SEA LAND ACLEAN 1975 SEASON SUMMARY TAPE LV35 MIDSHIP TRANSDUCER PAGE 154

MAYCHAVE SMELL DARCHANDE DARCHANDE	CYCLES STRESS ——AAVE IND— A5T 11336 5523	
245 122.0 024P 024P 024P 0309 1039 531-55 W 29.7 099 45 06 531-55 W 29.7 099 094 531-55 W 29.7 099 094 531-55 W 29.5 0105 0105 0105 0105 0606 06 531-50 W 20.5 0105 0105 0105 0105 0606 0609 531-50 W 20.5 0105 0105 0105 0105 0606 0609 531-50 W 20.5 0105 0105 0105 0105 0606 0609 531-50 W 20.5 0105 0105 0105 0009 0009 0009 0009 531-50 W 20.5 0105 0105 0009 0009 0009 0009 0009 531-50 W 20.5 0105 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009 531-50 W 20.5 0009 0009 0009 0009 0009 0009 0009	11336 179 5523	STRESS STRESS PSI PSI 1ST MODE
36-30 N 249 122.0 324P 024P 024P 0024P 00800 66 10089 10089		67 5538 2096
36-30 N 31-50 + 22.5 GT 30 06 0105 01069 0609 10699 0609 0609 0609 0609 06	AST 16220 161 6288	12644 2505
36-30 N 31-5C K 22.5 3135 0105 0606 13399 56-30 N 31-5C K 22.5 3155 0105 0105 0105 080C 13399 36-30 N 249 392.5 3155 0105 0105 033 13059 36-30 N 249 092.5 3155 0105 0105 0308 13059 36-30 N 249 111.8 032P 032P 034 032S 080C 1305 36-30 N 249 111.8 032P 032P 034 035S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 038B 10105 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 080C 1305 36-30 N 249 111.8 032P 032P 032P 038S 1505 36-30 N 249 111.8 032P 032P 032P 038S 1505 36-30 N 249 111.8 032P 032P 032P 038S 1505 36-30 N 249 111.8 032P 032P 032P 038S 1505 36-30 N 249 111.8 032P 032P 032P 038S 1505	CAST 156 9873 3947	47 2230 3114
26-30 N 245 392.5 3165 0165 0165 090C 06 03 10699 05 031-50 N 249 092.5 3108 0165 036 036 10699 05 031-50 N 249 092.5 3108 0165 036 0165 0368 10699 05 031-50 N 249 032.5 0162 034 032 036 034 03699 034 031-50 N 249 111.8 032P 002P 04 0325 0360 10105 036-30 N 249 111.8 032P 002P 04 0325 0360 10105 05 04 031-50 N 249 111.8 032P 002P 054 0325 0360 10105 05 054 031-50 N 249 111.8 032P 002P 054 0325 0360 10105 056 031-50 N 249 111.4 032P 002P 054 0332 0360 10105 056 031-50 N 249 111.4 032P 002P 054 0332 0360 10105 056 031-50 N 249 111.4 032P 002P 054 0332 0000 10105 056 031-50 N 249 111.4 032P 002P 00435 0000 10105 056 031-50 N 249 111.4 032P 002P 00435 0000 10105 056 031-50 N 249 0017.4 0350 0000 10105	061 1563 5	50 2516 3092
36-30 N 31-50 N 249 0922.5 0105 0105 0508 10599 00 011-50 N 22.5 07 30 06 050 0508 10599 00 011-50 N 249 111.8 002P 004 0325 0325 0360 00 008 10105 00 00 031-50 N 249 111.8 002P 004 002P 004 0325 0360 00 00 008 10105 00 00 031-50 N 249 111.8 002P 002P 004 0325 0500 10105 00 00 031-50 N 249 111.8 002P 002P 004 0325 0500 10105 00 00 031-50 N 249 111.3 002P 002P 004 0435 0500 10105 00 00 031-50 N 249 111.4 052P 052P 0545 0545 0500 10105 00 00 00 00 00 00 00 00 00 00 00 00 0	CAST 4794	3315 3114
36-30 "31-50", 249 111.4 30.2P 0.02P 0.04 0.32S 0.040 0.05 0.05 0.05 0.05 0.05 0.05 0.0	3 CCAST 10897 5	59 2730 3159
36-30 N 249 111.8 002P 002P 032S 036C 058 16105 06 031-50 W 27.2 05 20 04 032S 056C 058 16105 05 05 05 05 05 05 05 05 05 05 05 05 0	13062 107 4304	2720 2633
36-30 N 249 111.8 032P 002P 032S 360C 61 0 331-5C M 27.2 05 20 34 002P 10105 0 36-30 N 249 111.3 032P 002P 043S 060U 10105 36-30 N 249 117.4 032P 002P 043S 000C 61 0 031-50 M 249 117.4 032P 002P 043S 000C 61	CLDY 11643 4593	73 4383 2713
36-30 N 249 111.3 002P 002P 002P 004 009 10105 00 031-50 M 27.2 05 20 64 008 10105 00 00 00 00 00 00 00 00 00 00 00 00 0	11797 4742	4333 2690
0435 000C 600C 600C 6001-50 4 28.6 07 37 30 04	10919 4177	56 4571 2690
	CL0Y 14792 5545	4335 2401
0600 031-50 W 22.6 07 30 04 063 10118 062	161 4433 4550	3079 2549
*CLEAN2O9 020 02-01-75 36-30 N 249 117.4 002P 002P 002P 043S 060C 65 P	5 PT CLOY 11313 6	00 5157 2460
36-30 N 249 117.4 062P 062P 043S 086C 65 PT 085C 051-50 W 24.6 07 30 64 643S 088C 65 PT	152 10912 4742	3798 2527
1200 32-35 % 249 117.0 302P 032P 343S 383C 65 P	157 5622	2557 2698
32-35 % 240 117.0 002P 002P 04JS 060C 55 PT 1200 04 28.5 07 50 04	154 12773 4304	51 3590 2742

SEA LAND MCLEAN 1975 SEASON SUMMAN TARE LVBS NIDSHIP TRANSDUCER PASE. LOA

SURSTS COMMENTS 2527 2001 2053 2311 SEA LAND MOLEAN 1975 SEASON SUMMERY TAPE LUBS MIDSHIP TRANSDUCER PAGE 168 NUMBER RMS MAX CYCLES STRESS STRESS PSI PSI 2554 --- NAVE IND-- 1ST MODE 2305 3382 3315 2475 1903 3077 4008 3315 1517 2601 3746 3136 3307 2.36 STEESS OF SOLES 00 8132 51 20 64 52 71 55 1, 99 3 5236 39 3150 4536 4875 3793 43.6 3716 3523 3501 3724 4104 4601 3775 1470 2095 6097 5233 12644 6785 2119 14235 7529 1948 7113 12740 7953 8285 7435 10236 10565 9537 163 172 171 00 66 PT CLOY OD PT CLOY 10168 066 CLUY 65 PT CLOY 1 063 65 PT CLOY 0225 08CC 66 PT CLDY 006 10140 C70 66 PT CLUY 5 C70 10151 064 PT CLOY PT CLOY YCLO T4 64 PT CLDY SO PT CLEY PT CLDY 66 PT CLDY 0300 000 900 10146 070 10121 063 10146 076 10108 056 10161 064 00 3435 0500 6' 10146 10108 19101 10101 SWELL SWELL SWELL LENGTH OIR FEET 3455 C600 006 101c 0228 0900 0800 0455 0300 322S 030C 0255 0000 0800 3225 . 0300 0080 0000 0300 SWELL 0455 900 900 0455 0255 0255 LINGITUDE SHIPS SEA REL MAVEMAVE
SPEEU STATE WIND HT LENG
KTS SPEED FEET FT
KNOTS REL REL MAVE MIND MAVE PO DIR DIR SECS 276 118.7 0115 0115 121.0 0225 0225 32-35 N 270 113.7 0115 0115 0 044-25 W 29.0 07 30 03 MCLEAN209 027 02-01-75 32-35 3 249 117.0 002P 002P 554 35 07 30 04+25 4 26.5 07 30 04 4CLEAN209 026 02-01-75 32-35 , 270 113.7 5115 9115 59.8 59.8 37 05.05 #CLEAVECS 02-01-75 32-35 1, 270 121-0 0225 0225 55 59 59 41 25 4 06 25 03 02 2400 32-35 . 290 127.5 0025 0025 2400 04-25 W 31.0 06 25 02 31.0 06 25 02 290 32-35 N 290 127-5 0325 0025 2400 044-25 H 31.0 06 25 02 132.4 0025 0025 32.7 06 25 02 401647209 031 02-02-75 32-35 F 270 132-4 5025 0325 90164725 % 32-7 06 25 02 270 118.7 0115 0115 #CLEAN209 029 02-01-75 32-35 N 270 121.0 0225 0225 0225 59W 43 02-01-75 N 044-25 N 29.4 06 25 J 32-35 N 249 117.0 002P 002P 002P 002P 121.0 0225 0225 4 36 25 0 250 127.5 3025 6025 25 20 SHIPS PROP 4CL24N209 029 02-C1-75 32-35 11 270 12 59% 42 42 2000 0.67 25-35 v 25-25 u 31.0 02-01-75 32-35 % 270 11 #CCEANZOY 029 02-01-75 32-35 N 270 12 MCLEAN209 030 02-01-75 32-35 N 270 59M 46 24-05 W 31. 230 044-25 W 044-65 H 32-35 % LATITUDE MCLEANZ09 026 02-01-75 32-35 N 59# 40 1630 02-01-75 3 MCL 21N 209 328 32-01-75 3 113 2400 51 -52--29 55 64 MCLEAN209 030 62-01-75 MCLEA4209 650 02-01-75 WCLE 4.4269 USU C2-01-75 DATE TRIP INTERVAL WCL = ANZ 05 026 C 4CL 244209 027 5 H 47 +CLEAN209 051

DEPART PORTSHOUTH. VA DEPART PORTSAGUTA, V. 2163 2319 2014 2035 502 2244 BURSTS COMMETTS 2051 2007 1888 1940 1925 SEA LAND MCLEAN 1975 SEASCH SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 178 NUMBER RMS MAX CYCLES STRESS STRESS PSI PSI 928 --- AAVE INO-- 1ST MCDE 1293 2527 1969 1442 1404 1256 1300 951 1412 1144 1367 1.7 P-TO-T NUMBER STRESS OF PSI BURSTS 1637 15 2 3220 12 1501 1903 1917 1390 1623 531 351 1613 1555 1995 2152 1303 1805 1336 557 152 152 2506 5790 3620 184 3350 1.5 4116 7414 3273 3554 2683 3829 +614 143 138 162 HEATHER 0255 0600 66 PT CLCY 054 10161 064 10161 064 10 65 CCAST 10152 C61 0255 0600 65 0CAST 003 10152 061 0255 0600 BS CCAST 10152 051 10184 C58 0255 0600 65 CCAST 003 10154 356 3255 0600 65 0CAST 003 10184 058 3255 0600 65 LLAST 003 10184 053 3255 0600 55 0CAST 033 10100 050 1255 060c 50 CCAST 003 101c8 050 3255 0600 58 (CAST 303 10150 556 SWELL BAPOM AIR
HT INCH TEMP
FEET HG REL SWELL SWELL LENGTH SEA DIR FEET TEMP 10112 041 3255 0600 5c 10152 0255 0600 025 0255 0600 0090 2520 025S 06CC 004 101 157P 050C 903 LONGITUDE SHIPS SEA REL MAVEMAVE
SPEED SIATE MIND HI LENG.
KTS SPEED FEEF FT
KNOTS REL REL WAVE WIND WAVE PO DIR DIR SECS 132.4 002S 002S 7 06 25 02 044-25 x 32.8 J6 25 01 MCLEANZC9 031 02-02-75 32-35 N 29J 132.4 0025 0025 59W 51 504 50 04-25 W 32.7 06 25 02 044-25 W 32.6 06 25 01 MCLEAN239 032 02-02-75 32-35 4 290 132.0 0025 0025 002 5 59 55 96 25 01 5 02-02-75 32-35 N 290 132.5 0255 0255 56 1200 044-25 W 32.0 06 25 01 #CLEAN209 033 02-02-75 32-35 N 290 132.5 0255 0255 59W 65 1200 044-25 W 32.5 06 25 01 044-25 W 32.6 U6 25 0153 02-02-75 5-35 6 240 132.5 0255 0255 0255 02-02-04-23 4 55.0 044-25 % 32.8 38.5 0255 0255 01 N 290 132.0 0025 0025 044-25 # 32.6 06 25 344-25 x 32.6 06 25 0028 044-25 H 32.8 06 25 0 090 087.2 090P 090P 21.2 Ja 390P 090P SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS HIDSHIP TRANSDUCER PAGE 17A DATE LATITUDE COURSE RPM 1 02-02-75 32-35 N 290 13 52 04:00 044-25 H 32.7 MCLEAN209 032 02-02-75 32-35 N 44-25 02-02-75 32-35 1, 0300 0364-, MCLEAN209 033 02-02-73 32-35 N 32-35 N 2 02-02-75 34-35 N 55 0800 044 #CLEAN209 034 02-02-75 32-35 11 34-35 N SMT SMT *CLEAVZII 303 02-07-75 MCLEAN209 034 02-02-75 ACLEAN209 034 02-02-75 35 02-07-75 TRIP INTERVAL 99 59H 63 MCLEAN209 032 MCLEAN 209 032 4CLE4N209 034 MCLEAN 211 003 MCLEAN209 033 MCLEAN209 031

SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVUS MIDSHIP THANSDUCER

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TRIP INTERVAL TIME LUNGITUDE SHIPS SEA REL MAVEMAVE	DIR FEET TEMP WEATHER	PSI 905 COMENTS
SPEED STATE HIND KTS SPEED KNOIS	SWELL BAKOM AIR HI INCH TEMP FEET HG	NUMBER KMS MAX MEAN CYCLES STRESS STRESS STRESS - STRESS
MCLEAV211 003 02-07-75 090 087.2 090P 090P 090P 090P 090P	157P 0500 43 CCAST 036 10112 041	1122 2 DEPART PORTSMOUTH, VA
MCLEAN211 003 02-07-75 090 087.2 090P 090P	157P 050C 43 0CAST 006 10112 041	1410 2 DEPART POSTSMOUTH, VA 192 558 707 -1514
MCLEAN211 004 02-07-75 36-46 1 094 094.3 139P 139P	161P 050C 45 0CAST 00b 10116 045	143 1019 634 2192
MCLEAN2II 054 C2-07-75 36-46 N 094 094.3 139P 139P 50 073-44 W 23.0 05 20 03	161P 0500 45 0CAST 005 10116 045	152 2235 1 767 2120
MCLEAN211 004 62-07-75 36-46 N 054 054.3 139P 139P 60E 15 1600 073-44 23.0 05 20 03	161P 050C 45 CCAST 006 10116 045	143 2414 974 0 2133
MCLEAV211 004 02-07-75 36-46 N 094 094.3 139P 139P 60E 16 1630 673-44 N 23.0 05 20 03	1619 050C 45 0CAST 506 10115 045	133 1011 0 2008
40LEAV211 305 G2-07-75 36-46 N 034 U92.6 139P 139P	161P 0500 71 CCAST 006 10105 050	3673 0 1337 121 1328 0 1337
#CLEAN211 005 02-07-75 36-46 N 094 092.8 139P 139P 60E 18 2000 073-44 W 22.6 06 25 03	161P 3500 71 0CAST 306 10105 050	120 2392 0 1454
#CLEAN211 305 42-07-75 36-+0 N 09+ 092.8 139P 139P 60E 19 22.6 06 25 03	151P 0500 71 0CAST 006 10105 050	103 2679 1 765 1291
4CLE4N211 305 U2-07-75 36-46 N 394 092.8 139P 139P 505 20 60 25 03	161P 0500 71 UCAST 006 10105 050	104 2312 3 0 1196
MCLEAN211 006 02-07-75 36-45 P. 054 118.7 1359 1399 60E 21 2400 075-44 P. 28.9 06 25 03	161P 0500 69 3CAST 306 13111 054	101 1350 0 1144
MCLEANZII 006 02-07-75 36-46 N 094 118.7 139P 139P 60E 22 2400 073-44 N 28.9 06 25 03	161P 050C 69 0CAST 006 10111 054	3631 0 1543 0 1259
MCLEAVZII 006 02-07-75 36-46 N 034 118.7 139P 139P 606 23 639	1519 3500 39 1CAST 038 10111 654	90 3220 0 1281
ACLEAN211 006 02-07-75 30-45 N 094 118.7 139P 139P 606 25 03	161P 3500 69 UCAST	95 1053 0 1513
MCLEANZII 307 22-05-75 36-46 % 994 120.7 161P 161P 605 25 0430 075-44 % 29.5 36 25 03	1390 0600 06 00481	77 4351 3 0 1321
MCLEAN2II 007 02-06-75 30-46 N 394 120.7 1619 1019 608 26 06 26 03	139P 00CC 00 CCAST	65 2408 0 1225 /

1161 1594 1166 1493 1469 BURSTS COMMENTS 1380 1453 1454 1742 1009 101 1500 2052 1461 1950 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVUS MIDSHIP TRANSDUCER PAGE 198 NUMBER RMS MAX CYCLES STRESS STRESS PSI PSI ---- IST HODE 0 0 0 0 0 0 0 0 101 0 612 0 0 0 NUMBER 0 2510 2576 2031 2761 2554 2746 2945 2347 2259 2313 2113 2000 4185 2731 2731 2359 915+ P-TO-T STRESS PSI 5027 5751 5780 3765 5327 4239 8017 6445 5035 5374 4901 5664 6873 5721 5101 69 19 63 99 49 75 72 58 76 73 2 20 2 HEATHER 10159 072 70 0CAST 10120 058 10161 368 10119 056 10139 055 4 0CAST 059 10 66 OCAST 10120 058 C 70 SCAST 10120 058 0 64 UCAST 10139 059 0 64 CCAST 10139 059 139P 0500 73 CCAST BAROM AIR INCH TEMP HG 10120 058 REL SWELL SWELL LENGTH SEA DIR FEET TEMP 65 53 10139 13159 10101 10101 10101 139P 0600 139P 06CC 010 1012C 139P 06CC 010 101 139P 05CC 1359 0600 139P 060C 0000 139P 06CC 1614 0600 139P 060C 1396 0600 0090 161P 3603 161P 0600 161P 060C SWC LL HT FEET 010 1617 1616 LONGITUDE SHIPS SEA REL MAVENAVE SPEED STATE MIND HT LENG KTS SPEED FEET FT KNOTS REL REL WAVE WIND WAVE PO DIR DIR SECS 03 03 03 03 03 03 03 03 03 03 02-08-75 36-46 N 094 120-7 161P 161P 63 03 93 03 03 050-14 W 23.5 29.5 07 161P 161P 27 02-03-75 36-40 N J94 120.7 161P 161P 36-46 N 034 120.7 139P 139P *CLEAVZ11 010 C2-08-75 36-02 7, 394, 121.0 161P 151P 66E 33 66E 33 1600 121.1 161P 161P 14 120.5 139P 139P 29.4 07 30 C 121.0 161P 161P 120.5 139P 139P 4 121.1 161P 151P 120.5 139P 139P 120.7 139P 139P 4 120.5 139P 139P 29.4 07 30 120.7 139P 139P 9 02-08-75 36-46 11 054 120.7 139P 139P 35 52 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LUBS MIDSHIP TRANSDUCER PAGE 194 90 SHIPS PROP 063-14 . 29.5 62-08-75 36-46 N 094 12 02-08-75 36-46 N 094 12 0800 073-44 M 29.4 02-03-75 36-46 N 094 12 1200 373-44 W 29.5 *CLEAN211 011 02-08-75 36-02 N 094 12 29.4 560 560 734 4CLEAN211 008 C2-08-75 30-46 14 094 605 31 605 31 0800 073-44 H 073-44 # 350-14 × 363-14 W LATITUDE 55-46 N 5830 36-32 % 1630 AS-02 R N 20-98 02-08-75 36-02 N T INE C2-08-75 02-08-75 37 02-38-75 MCLEAN211 010 02-03-75 MCLEMN211 009 02-08-75 02-03-15 DATE TPIP INTERVAL 30 28 35 33 36 39 LCGBOOK MCLE4N211 011 60E 41 MCLEAN211 010 MCLEAN211 007 MCLEAN211 010 *CLEAN211 009 MCLEAM211 008 4CLEAN211 003 1CLEAN211 009 MCLEAN211 007 MCLEAN211 008 4CLEAN211 309 Z OZ ANALGG NUMBER

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STRESS PSI 2074 SURSTS COMMENTS 1358 1255 753 1040 1092 1284 834 1011 636 1033 656 952 205 922 STRESS PSI SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 208 BOOK ISI -- CNI BYANE 0 0 0 0 0 2975 0 0 NUMBER CYCLES STRESS 2362 2170 2214 2746 2362 1993 2443 2296 2258 2104 2365 2347 2318 2332 2539 P-TJ-T STRESS PSI 63 6245 4651 4414 5574 5443 5359 6806 4134 5640 9154 5352 5751 +673 4422 4651 4392 99 53 25 00 15 61 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER 34 PT CLUY 10159 072 10159 072 10191 063 0 62 PT CLCY 10191 063 0 62 FT CLOY 15191 063 10191 063 0 64 PT CLEY 10153 072 0 04 FT CLUY 10153 072 CLOY 10228 068 61 PT CLEY 10179 065 0 64 CCAST 10179 065 10179 065 10179 065 BAROM AIR INCH TEMP HG 10193 072 10193 37 7101 0000 161P 060C 161P 0600 161P 0600 010 101 161P 060C 161P 0600 008 10 161F 0500 003 10 1619 0600 161P 0630 1088 1 161P 0000 1 161P 360C 161P 3600 008 1 1619 0600 0090 0690 SWELL HT FEET 010 800 010 010 008 000 1619 SEA REL MAVEMAVE
STATE WIND HT LENG
SPEED FEET FT
KNOTS REL REL MAVE WIND WAVE PD DIR DIR SECS 03 03 03 03 094 121.1 161P 161P 03 03 03 03 MCI EAN 211 013 62-69-75 36-02 h 034 121.1 161P 161P 60E 52 0400 060-14 h 25.6 00 25 03 094 120.7 161P 161P 03 394 120.7 1612 161P , 29.5 34 15 03 03 03 3.6-42 a 20.6 05.1 157F 157F 094 121.0 161P 161P 060-14 W 29.5 05 25 03 MLEAN211 013 02-09-75 36-02 N 094 121.1 161P 161P 08 121.0 161P 161P 121.1 161P 161P 094 121.1 161P 161P 29.5 36 25 0 4 120.7 161P 161P 25.5 04 15 0 046-42 k 20.0 085-1 157P 157P 121.1 161P 161P 29.5 36 25 C 120.7 161P 151P 25 SHIPS PROP COURSE RPM MCLEAN211 014 62-05-75 55-02 N 094 12 606 54 0860 0860 0860-14 N 29-5 MCLEANZII 012 02-08-75 30-02 N 094 12 60E 45 2400 060-14 N 29-5 LCNGITUDE SHIPS SPEED KTS 360-14 W 29.6 59.6 060-14 W 29. 960 760 #CLEAN211 013 02-09-75 36-02 N 09-14 H 36-52 % 350-14 % 350-14 % 2400 360-14 % MCLEANZII 013 02-09-75 36-02 N 09 060-14 × #CLEAV211 014 02-09-75 30-02 1 000-14 0 0300 0300 36-02 N 350-14 N MCLEAV211 312 02-08-75 36-02 N 560-1-LATITUDE 2400 36-02 N 32-12 3 35-12 N 30-02 N MCLEAN211 011 02-03-75 36-02 N TIME 2030 WCLEAN211 012 02-08-75 *CLEAN211 014 32-39-75 62-08-75 MCLEAN211 011 02-08-75 MCLEAN211 014 32-09-75 ACLEAN211 015 02-09-75 *CLEANZII 015 C2-09-75 DATE TRIP INTERVAL 14 4CLEAN211 012 ANALCG NUMBER

SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS HIDSHIP TRANSOUCER PAGE 21A

21 2369 2576 -38 207 -134 -134 -240 -267 BURSTS COMMENTS 296 386 -75 -237 -223 -371 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LUBS MIDSHIP TRANSDUCER PAGE 21b CYCLES STRESS STRESS --- NAVE IND-- 1ST MODE 0 0 0 0 0 0 0 0 0 NUMBER 2783 2524 2553 2783 2790 5133 3565 2324 2302 3220 2724 5638 2539 2503 2394 6003 P-TO-T STRESS 5743 5530 6032 6002 8659 5330 4619 47.4 5.55 6385 4443 5435 5859 7330 63 23 10 73 63 73 11 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER C 61 PT CLDY 10228 068 157P 0600 61 PT CLOY 003 10228 C68 157P 0600 64 CCAST 008 10224 068 10240 055 102-5 PT CLOY 0500 5C PT CLDY 10245 C59 S UCAST 10224 068 CC 62 UCAST 13232 062 157P 0600 64 0CAST 008 10224 060 C 52 0CAST 10232 C62 OCAST BAROM AIR INCH TEMP HG 10224 066 40 29 139P 06CC 02 003 10232 10232 10245 139P 06CC 1570 0600 157P 0600 003 10. 139P 06CC 00S 10 1356 0500 1579 0000 1399 0600 139P 0600 012 10 139P 0500 · SWELL 800 FEET 1399 1396 LUNGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HT LENG RTS SPEED FEET FT REL REL NAVE NIND MAVE PO DIR SECS 03 0 32 02 02 02 02 02 02 03 03 MCLEANZ13 019 02-10-75 35-12 N 072 000-9, 117F 117P 05-05 05 05 05 012 050.7 1179 1179 045-42 x 19.6 03 10 0 000.7 117P 117P 40LE1N213 016 02-09-75 35-12 N 072 060-7 117P 117P 0 0 055-42 N 19.6 0 03 10 0 090 080.7 157P 157P 35-12 14 012 050.7 117P 117P 0 390 085.1 157P 157P 040.7 157P 157P CLEA'1213 017 02-09-75 35-12 N 072 079.8 139P 139P 50E 05 05 05 05 15 0 MCLEANZIS G17 U2-09-75 35-12 N 072 079-8 1399 1399 666 07 2000 #CLEAN213 617 62-09-75 35-12 N 072 679-8 139P 139P 20 2 03 93 COURSE RPM MCLEAN211 015 02-09-75 35-12 N 046-42 W 20.8 VCLEANZIS 016 02-39-75 55-12 N 572 000 9.61 × 24-940 LATITUDE MCLEAN213 010 02-09-75 35-12 N 60E 01 160C 046 MCLEAN213 018 02-09-75 35-12 N 502 12 2400 04 TINE MCLEAN213 015 02-09-75 35 DATE TRIP INTERVAL Co ANALCG LCGBOOK NON MCLEAN211 015 MCLEANZL3 NUMBER

SEA LAND MCLEAM 1975 SEASON SUPPARY TAPE LVBS MIDSHIP TRANSDUCER SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LV3S MIDSHIP TRANSDUCER PAGE 22A

STRESS PSI -326 -452 194--363 0 - 607 -467 2 100 BURSTS CUMMENTS -304 -156 -37 NUMBER RMS MAX CYCLES STRESS STRESS CYCLES PSI PSI ---MAVE IND-- 1ST MODE 0 0 0 0 115 0 0 0 0 0 681 NUMBER 2842 2997 3368 3175 5027 3516 3360 5675 2901 3086 2946 3516 2012 3123 4.71 3553 P-13-1 STRESS PSI 5847 7276 1504 6135 7313 6459 5773 5647 1476 1606 6151 9250 6743 5855 5571 6130 73 60 25 7.0 00 PAGE 228 REL SKELL SWELL LENGTH SEA OIR FEET TEMP WEATHER 0 61 PT CLDY 10242 059 139P 0800 61 PT CLDY 012 10240 559 61 PT CLOY 139P 080C 61 PT CLOY 012 10242 055 139P 046C 61 PT CLOY 012 10242 059 012 10242 C59 60 PT CLDY 0800 59 PT CLEY 016 10230 065 PT CLOY 60 PT CLOY SO PT CLOY 5, PT CLDY SWELL BAKOM AIR HT INCH TEMP FEET HG 10240 059 10246 060 140P 0500 59 PT 10246 060 010 13246 360 016 13229 053 13230 005 90 10246 10255 10229 139P 060C 139P 080C 140P 060C 0090 1409 0600 140P 080C 140P 030C 140P 0300 1466 0896 1406 0300 140P 060C 017 010 910 010 010 010 LONGITUDE SHIPS SEA REL MAVEMAVE
SPEED STATE WIND HT LENG
KTS SPEED FEET FT PO REL REL MAVE NO DIR UIR SECS 03 03 03 03 03 03 03 02 012 080.9 117P 117P 372 030.6 117P 117P MCLEANZIS 020 02-10-75 35-12 N 072 060.6 117P 117P 060.6 50 04 15 0 073 031.5 118P 113P 013 064.9 1639 1639 037-40 H 20.7 02 05 0 037-40 N 20.7 03 163P 163P 080.9 1179 1179 080.6 1179 1179 072 050.6 117P 117P 001.3 118P 113P 8 04 15 0 081.3 118P 115P 081.3 118P 115P 037-40 W 20.7 02 05 05 05 2000 37-20 N 037-40 N 20.7 084.0 163F 163F 2000 15 04 04 SHIPS PROP 017-40 k 19.8 045-42 W 19.6 1200 037-40 W 19-8 046-42 W 19.6 MCLEAN213 320 C2-10-75 35-12 N 072 02 60E 19 0830 046-42 M 19.6 346-42 W 19.6 037-40 W 19.8 HCLEANZIS 021 02-10-75 37-20 N 075 00 046-42 H 19.7 072 610 LATITUDE 02-10-75 35-12 N HCLEAN213 621 62-10-75 37-20 N 54C 22 1200 337 MCLEAN213 021 02-10-75 37-20 N 547 5 0 0 547 MCLEAN213 020 02-10-75 J5-12 N HCLEAN213 320 62-10-75 35-12 N 31-26 N 2000 37-20 N MCLEAN213 019 02-10-75 35-12 N 1600 0 TIME CMT MCLEAN213 022 02-10-75 00E 27 160 MCLEANZIS 021 02-10-75 02-10-75 *CLEAV213 022 02-10-75 508 25 12 966 EAN213 023 02-10-75 MCLE14213 022 62-10-75 *CLEAN213 023 02-10-75 60E 29 20 TRIP INTERVAL ANALGG LEGGEOR TAPE INDEX NUMBER NUM 91 58 50 MCLEAN213 019 MCL 644213 022

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ADLLING IN 18 FT SM. ROLLING IN 18 FT SWE ROLLING IN 15 FT S. ROLLING .. 19 FT Sat 5.7 826--171 -726 -719 -992 -905 -622 -763 -867 BURSTS COMMENTS -63 PSI --- AVE IND-- 1ST MODE 0 0 0 0 0 PAX
P-TO-T NUMBER
STRESS OF
PSI BURSTS CYCLES STRESS 3234 3131 3456 5227 3205 3804 3234 3767 3493 3738 4078 3,31 6783 10111 7105 8142 0669 6024 7424 7863 6573 6002 9959 7772 2451 6735 5712 14 92 20 90 90 REC SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER 10193 058 13C 59 PT CLUY 10193 05s 140P 0500 54.PT CLCY 016 10229 058 140P 0300 54 PT CLOY 016 10229 053 118P 0500 57 PT CLCY 018 10213 057 57 PT CLCY 3 C57 118P 080C 57 PT CLOY 018 10213 057 113P 0800 57 PT CLCY 313 16213 657 118P 0800 59 PT CLUY 018 10193 058 59 PT CLOY 3 054 113P 050C 55 PT CLUY PT CLOY 116P 080C 50 PT 016 10190 053 10170 060 10190 10190 10213 10193 10170 1136 0830 118F 040C 118P 383C 1169 0000 1182 0300 118P 0360 016 010 910 910 010 013 118P LUMGITUDE SHIPS SEA REL MAVEWAVE
SPEED STATE WIND HT LENG
KTS SPEED FEET FT
KNOTS SHIPS PROP WIND WAVE PD COURSE RPM DIR DIR SECS 073 385.4 1745 1745 05 20 04 02-10-75 37-20 N 037-40 W 20.8 045.3 1525 1525 5 02-11-75 37-20 N 073 005.2 1745 1745 39 04-0 04-0 037-40 W 20.6 03.10 03 5 02-11-75 37-20 N 073 035.2 1745 1745 40 40 0400 037-40 W 20.8 03 10 03 50 237-40 N 227-50 W 20.6 005.3 1745 1745 1745 1200 065-2 1745 1745 3 03 10 03 5 G2-11-75 37-20 N 073 085.2 1745 1745 38 38 0400 037-40 W 20.4 03 10 03 37-20 N 073 085-4 1745 1745 0850 085 037-43 W 20.8 05 4 1745 1745 MCLEAN213 023 02-16-75 37-20 N 073 084-8 163P 163P 087-60 05 05 10 0 0 05 10 N 10 10 0 0 17-40 M 20.7 3 004.8 163P 163P 20.7 03 10 0 FCLEAN213 026 02-11-75 37-20 H 015 365-4 1745 1745 63E 42 083C 037-43 H 20.8 05 20 0 527-50 M 20.4 06 25 0 37-20 14 027-40 # 20.8 02-11-75 37-20 4 073 06 7 0400 037-40 w 20.8 073 037-40 W LATITUDE 5 37-20 N MCLEAN213 023 02-10-75 37-20 N HOLEAN213 027 02-11-75 37-40 N. 0000 TINE 43 02-11-75 MCLEAN213 026 02-11-75 MCLEAN213 026 02-11-75 6CE 41 080 MCLEAN213 027 02-11-75 DATE TRIP INTERVAL MCLEAN213 024 44 ANALCG LCGBGOK TAPE INDEX MCLEAN213 025 MCLEAN213 024 NO. MCLEAN213 024 WCLEAN213 024 MCLEAN213 025 MCL EAN 213 025 MCLEAN213 025 MCLEAN213 026 NUMBER

SEA LAND MCLEAN 1975 SEASGN SUMMARY TAPE LVOS MIDSHIP TRANSDUCER PAGE 243 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LV3S MIDSHIP TAANSDUCER PAGE 24A

ANALGG LGBGDK TAPE INDEX NUMBER NUM DATE LATITUDE TRIP INTERVAL TIME LONGI NUM GMT NUM GMT ACLEAN213 027 02-11-75 39-40 N	SHIPS PROP MIND MAVE PO	REL SWELL SWELL LENGTH SEA	SS OF
P INTERVAL TIME NUM GNT 027 027 02-11-75 39-40 N	RPM DIR DIR		PSI BURSTS COMMENTS
027 02-11-75 39-40 N	LGAGITUDE SHIPS SEA REL MAVENAVE SPEED STATE WIND HT LENS RTS SPEED FEET FT KNOTS	SWELL BARGN AIN HI INCH TEMP FEET HG	NUMBER RMS MAX MEAN CYCLES STRESS STRESS STRESS PSI PSI PSIAAVE IND 1ST MODE
0031	073 085.3 1745 1745 027-50 W 20.8 06 25 04	118P 0500 56 PT CLOY	65.32 0 222
MCLEAN213 027 02-11-75 39-40 N 027-50 H	013 085.3 1745 1745 0 H 20.8 06 25 04	1169 0800 56 PT CLOY	65 3442 0 162
MCLEAN213 026 02-11-75 39-40 N 027-50 M	073 085.8 1525 1525 3 k 20.9 05 29 04	118P 07cc 57 PT CLOY	67 3212 0 -23
MCLEANZIS 028 02-11-75 39-40 N 027-53 M	073 085.8 1525 1525 0 # 20.9 05 20 04	118P 07CC 57 PT CLOY	5995 0 -149
MCLEAN215 028 02-11-75 39-46 N 00 027-50 H	073 085.8 1525 1525 3 H 20.9 05 20 04	118P 072C 57 PT GLOY	6173 0 -326
MCLEANZIS 023 02-11-75 39-40 N 027-50 H	373 285.3 1525 1525 3 H 23.9 05 20 34	118P 07CC 57 PT CLDY	7594 0 -260
MCLEAN213 029 62-11-75 39-40 N C 80E 53 2000 2000 027-50 M	072 000.5 1535 1535 0.4 21.1 00 25 04	117P 07CC 53 PT CLEY 014 10144 055	63 3945 0 -430
MCLEAR213 029 02-11-75 39-40 N 027-50 A	072 086.5 1535 1535 0 4 21.1 00 25 04	117P 0700 58 PT CLDY 314 10148 658	5,995 0 -334
MCLEARIZIS 025 62-11-75 39-40 N 0 608 55 2000 027-50 m	0 m 21.1 06 25 04	117P 0700 55 PT CLOY	61 3479 0 -163
96LEBM21: 029 62-11-75 39-40 N 0 03E 56 2000 027-50 ₩	072 086.5 1535 1535 0 W 21.1 06 25 04	117P 670C 53 PT CLOY 014 10145 058	66 2933 0 -163
MCLEANZ13 033 02-11-75 39-40 N 927-50 4	072 Gass 1645 1645 0 4 21.2 06 25 04	117P 070C 54 PT CLOY	5522 0 0 2536
MCLEAN215 030 02-11-75 39-40 N 027-50 m	072 086.8 1645 1545 0 # 21.2 06 25 04	1179 6760 54 PT CLOY	61 3242 0 -245
MCLEAN213 036 62-11-75 39-40 N 027-50 H	072 466.3 1645 1645 0 n 21.2 06 25 04	1179 07CC 54 PT CLOY 014 10145 055	62 4063 0 -245
MCECAN213 630 62-11-75 59-40 N 60E 60 827-50 A	072 036.e 1645 1645 0 a 21.2 06 25 04	117P 370C 54 PT CLOY	5676 0 c -136
*CLEARZIS USI G2-12-75 39-40 N 027-50 A	072 056.7 1755 1755 0 d 21.1 05 20 04	117P 0700 56 00AST 014 10135 057	55 3500 0 0
MCLEAN215 031 02-12-75 35-40 N 027-5	027-50 4 21.1 05 20 04	117P 0700 56 0CAST 014 10135 057	5232 390c 0 59 N

SEA LAND MOLEAN 1975 SCASON SUMAANY TAPE LV3S MIDSHIP TAANSDUCEN SEA LAND MCLEAN 1975 SEASON SUMMARY TARE LVOS MIDSHIP TRANSDUCER

14	ANALUG LEGBUCK TAPE TNDEX NUASER NUM DATE LATITUDE COURSE RPM DIR DIR SECS	REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER	MAX P-T.G-T 1,UMBER STAESS OF PSI DARSTS COMMENTS
4.00	TIME LONGITUDE SHIPS SEA REL GMT SPEED STATE WIND KTS SPEED KNOTS	BARDA INCh HC	STP ESS STR ESS PSI PSI NE IND IST MODE
39-40 N 027-50 W 027-	02-12-75 39-40 N 072 086.7 1755 1755 3 0430 027-50 W 21.1 05 20	070C 5	3402 0
39+0 N 227-50 # 21.1	02-12-75 39-43 N 072 086.7 1755 1755 020-10-10-10-10-10-10-10-10-10-10-10-10-10	0700 514	5743 0 0 290c 0
80.3 9-4.0 N 27-50 W 21.1 086.7 1359 1399 1399 1396 12 13145 5.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	02-12-75 39-40 N 072 080.7 139P 139P 5 0800 027-50 H 21.1 05 20	030C 5	7518 0 0 3781 0
39-40 % 27-50 % 721 0 0 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	032 02-12-75 39-43 N 072 086.7 139P 139P	0800	3202 0
39-40 N 201-50 W 201-139P 139P 0900 57 CCAST 72 CCAST 72 9105 000 000 000 000 000 000 000 000 000	C2-12-75 39-40 % 072 086-7 139P 139P	0400	5112 0 0 2128
203	02-12-75 39-40 h 072 036.7 135P 135P 8 0400 027-50 w 21.1 05 20	0500 5	75.9 0 0 0
42-12 N 17-13 W 20.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	033 32-12-75 42-12 V 052 082.2 119P 119P E 09 1200 317-16 N 20.0 06 25	0700 5	7316 3695 0
42-12 N 17-18 N 20.0 0 0 25 0 0 0 25 119P 119P 0100 10160 058 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	033 02-12-75 42-12 N 352 382.2 119P 119P	0700 5	5661 2600 0
42-12 N 17-18 W 20.0 C6 25 04 010 1016 058 50 0CAST 50 0 2555 0 42-12 N 17-18 W 20.0 C6 25 04 097P 010 10152 057 79 CAST 79 C411 275 0 42-12 N 17-18 W 15.7 03 10 04 097P 010 10152 057 79 CAST 79 C411 275 0 42-12 N 17-18 W 15.7 03 10 04 097P 010 10152 057 79 CAST 79 C	033 02-12-75 42-12 V 052 082.2 119P 119P E 11 1200 017-13 × 20.0 06 25	0700 5	6500 0 3165 0
606 42-12 N 12-13 W 13-7 500 42-12 N 11-13 W 13-7 500 600 600 600 600 600 600 600 600 600	02-12-75 42-12 N 052 082.2 119P 119P	010 10160	4509 2535 0
42-12 N 17-18 W 16.7 03 10 04 097P 070C 50 0CAST 73 5-12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	62-12-75 42-12 h 352 076-5 097P 097P	0700	6411 2750 0
42-12 N 517-16 W 16.7 03 10 047P 0700 50 0645T 72 4242 337 0 42-12 N 5052 076-5 097P 097P 0700 50 0645T 74 5235 1 7	62-12-75 42-12 N 352 076.5 097P 097F 1690 017-18 N 18.7 03 10	0700	5512 2429 0
\$50 \$50 <td>42-12 4 352 676.5 097P 697P</td> <td>3700 5</td> <td>4242 2377 0</td>	42-12 4 352 676.5 097P 697P	3700 5	4242 2377 0
42-12 N J5-2 082-0 097P 097P 0700 55 BCAST 75 75 2082 6 3 3 3 20.0 35	02-12-75 42-12 V 052 076.5 097P 097P	0700. 5	5252 1 2535 74
42-12 N J52 082-0 097P 097P 097P 0100 55 0CAST 79 4517 0	7 02-12-75 42-12 14 052 032.0 057P 097P	97.00 0169	719, 6 STILL RELLING
	42-12 N 352 062-C 097P 097P 000 J17-18 N 20-0 35 20	0700	4517 451 0 STILL ROLLING

SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVSS MIDSHIP TAANSDUCER PAUE 268 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIP TRANSDUCER PAGE 25A

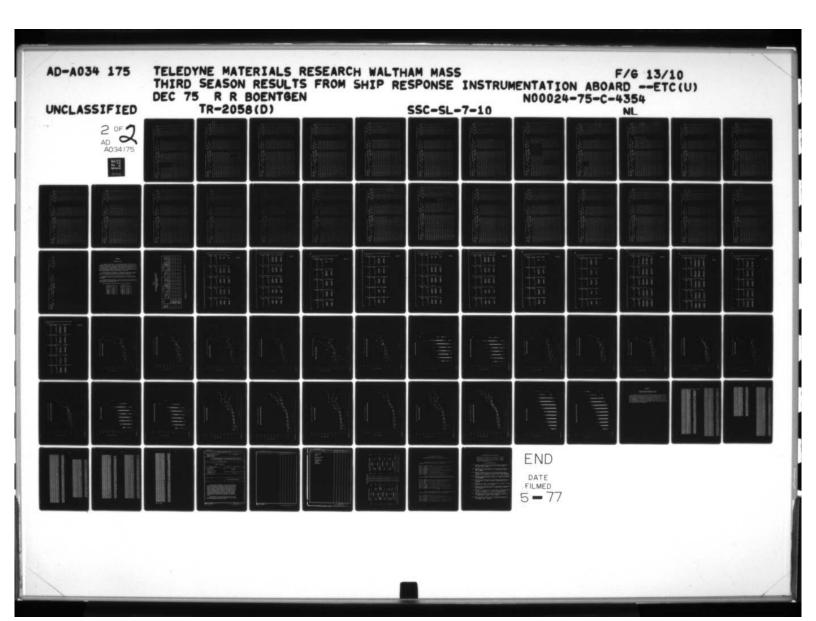
STILL ROLLING 20 DEC 288 BURSTS COMMENTS 245 257 371 274 408 257 542 267 222 312 512 572 165 NAX SIRESS PSI ----- IST MODE 0 0 0 O 2 0 0 0 0 0 NUMBER 0 0 GYCLES STRESS 2763 2438 2607 2362 2682 2741 2674 2793 2483 2800 2332 2800 2353 2315 2375 2097 5632 P-TD-T STRESS PSI 6263 5327 3557 0441 5133 6508 5624 5900 5115 5135 5331 5003 5400 5004 73 73 73 76 10 75 29 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER 2 53 PT CLDY 10143 050 0600 53 PT CLOY 10143 050 10143 050 057P 0600 50 PT CLDY PT CLUY 10149 046 097P 0700 55 UCAST 010 13159 053 10 54 0CAST 10160 054 097P 0700 54 0CAST 010 10160 054 0700 54 0CAST 010 1016C 054 10146 052 097P 0600 52 00251 060 10140 052 52 OCAST 097P 050C 52 0CAST 080 10146 052 INCH TEMP 10146 052 0972 0600 J2 PT SAELL BAROM
HT INCH
FEET HG 10112 094P 0660 097P 0600 080 101 097P 0700 097P 0730 097P 0700 097P 060C 0979 0600 3390 8150 2090 080 d2 50 LUNGITUDE SHIPS SEA REL WAVEWAVE SPEED STATE WIND HT LENG KTS SPEED FEET FT KNOTS REL REL MAVE WIND WAVE PO DIR DIR SECS 04 0 50 0 04 Š 04 03 03 40 4CLEAN215 057 02-13-75 42-12 N 352 060.4 097P 097P 60E 4CLEAN215 J37 02-13-75 42-12 N J52 J60.4 097P 097P 401647215 038 02-13-75 42-12 7, ∪52 079.1 097P 097P 697P 6017-16 H 19.5 05 20 04 052 032.0 097P 097P 466244215 037 02-13-75 42-12 N 052 060.8 097P 097P 0 017-13 W 19.7 04 15 0 4616 ANZIS 349 62-15-75 40-42 N JS2 J79.0 142P 142P 3000 905 37 1600 300-54 N 19.2 05 20 03 082.0 097P 097P 4LEANZIS 036 02-12-75 42-12 N 652 032.0 097P 097P 60F 60E 23 23 0 017-18 W 20.0 05 20 C 4CLEANZIS 036 02-12-75 42-12 N 052 052.0 097P 097P 097P 50E 24 24.00 017-13 M 20.0 05 20 0 017-18 W 20.0 35 20 C MCLEANZIS 037 02-13-75 42-12 N 352 080.8 097P 097P 60E 27 0400 017-13 N 19.7 04 15 0 #CLEAN215 038 02-13-75 42-12 N J52 079.1 097P 097P 097P 097P 0500 017-18 H 19.3 05 20 0 40LEAN215 040 62-13-75 46-42 N 052 075.0 142P 142P 60E 36 10E 36 1600 006-54 M 19.3 05 20 0 4CLEAV215 338 02-13-75 42-12 . 352 079-1 097P 397P #CLEAN215 039 02-13-75 46-42 N 354 079.6 697P 097P 60E 34 1209 1209 1308-54 N 19.4 055 20 0 ACLEANZIS 339 C2-13-75 46-42 N 352 379.5 097P 097P 097P 097P 000-54 H 19.4 05 20 0 20 SHIPS PROP COURSE RPM 5 02-12-75 42-12 N 052 08 017-18 , 20.0 4CLEAN215 055 02-12-75 42-12 N 517-18 4 02-12-75 42-12 4 LAT! TUDE 1136 G17 DATE TRIP INTERVAL 22 ANALCG LCGBGCK TAPE INDEX 4CLEAN215 036 MCLE 43215 036 AUPBER

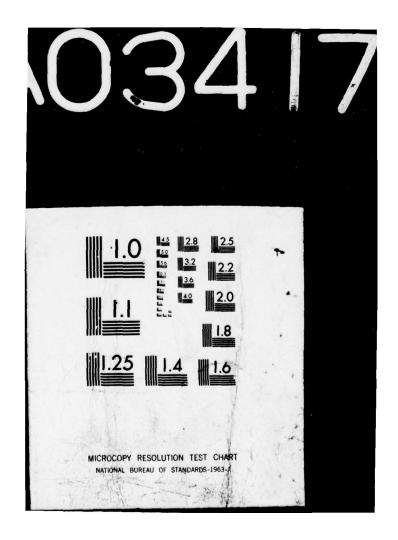
CHERBOUNG 0 165 CHERECUAG 585 260 BURSTS COMMENTS 170 341 202 364 274 222 207 200 59 252 1+1 237 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE 1965 MIUSHIP TRANSDUCER PAGE 278 STRESS ---WAVE IND-- 1ST MODE 0 0 0 0 0 0 MAX P-TO-T NUMBER STRFSS OF PSI BURSTS CYCLES STRESS
PSI 2934 1052 2793 2726 4078 3937 3425 3518 3062 2793 1027 5669 1567 2221 02+3 5936 2511 2600 8729 6805 7045 6209 6233 51++ 7630 5304 5639 3722 6032 18 10 09 50 53 14 65 19 2 11 SKEL SWELL SKELL LENGTH SEA DIR FEET TEMP WEATHER 0C 50 PT CLDY 10093 040 10083 C49 10 49 PT CLEY 097P 0600 50 PT CLDY 0097P 000 10112 055 097P 060C 50 PT CLDY 006 10112 055 10093 040 10053 C48 161P 060C 45 PT CLDY 306 10060 649 10030 C49 PT CLSY 10053 046 146F 0400 49 CCAST 003 100JB 048 10058 048 10056 048 49 CCAST BARON AIR INCH TEMP HG 146P 3430 49 00 003 13058 043 10045 046 3040 dESO 1461 0400 093P 0500 101P 0600 006 10 1469 0400 146P 040C 146F 0400 003 10 3090 4E60 093F 060C 101P C600 101P 060C SWELL HT FEET 900 900 900 900 L MGITUDE SHIPS SEA REL MAVEMAVE
SPEEL STATE WIND HT LENGKTS SPEED FEET FT
KNOTS REL REL WAVE SHIPS PROP MIND WAVE PD COURSE RPM DIR DIR SECS 1600 00-54 W 19-3 05 05 05 00 03 MCLEAW215 041 C2-13-75 46-42 N 046 073.7 138P 138P 03 008-54 W 19.2 04 15 03 042 02-13-75 46-42 N 35c 341.7 169P 169P MCLEARZIS 043 02-14-75 46-42 N 356 379.8 1695 1695 1695 50 50 50 50 50 068-54 W 19.5 04 15 02 079-6 1695 1695 5 04 15 02 663.1 1695 1695 0000-54 x 19.5 04 15 02 063.1 1695 1695 4 52 US 01 5 44-42 N 05c 079.3 1695 1695 0400 MCLEANZIS 340 02-13-75 46-42 N 052 079.0 142P 142P 62P 63E 63E 40 02-13-75 1613 008-54 W 19.3 05 20 C MCLEAN215 041 02-13-75 40-42 N 045 075-7 138P 138P 008-54 W 19.2 04 15 0 46-42 % 348 076.7 136P 138P MCLEAV215 G41 62-13-75 46-42 N 340 078-7 138P 138P 389P 606 608 44 2600 208-54 N 19.2 04 15 0 5 46-42 h 356 041.7 1699 1699 2430 03-54 M 19.9 03 10 0 #CLEANEIS 342 02-13-75 44-42 % 356 381.7 189P 169P 038-54 W 19.5 03 10 0 SEA LAND MCLEAN 1975 SEASON SUMMAPY TAPE LVBS MIDSHIP TRANSDUCER PAGE 274 5 46-42 N 356 379 0400 036-54 W 19.5 008-5+ W 15.4 LATITUDE 5 46-42 N 0400 003 × 24-95 ACLEANZIS 044 02-14-75 46-42 N 2000 TINE 2000 MCLEAN215 040 04-13-75 60E 39 160 4CLEAN215 041 02-13-75 MCLEAN215 042 62-13-75 MCLEANZIS 043 02-14-75 602 49 04 MCLEAN215 043 02-14-75 MULEAN215 043 02-14-75 04(*CLEAN215 044 02-14-75 DATE TRIP INTERVAL 94 LCG300K MCLE 13215 ANALGG NUMBER

SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS MIDSHIP TRANSOUCER PAGE 288 SEA LAND MCLEAN 1975 SEASCH SUMMANY TAPE LVBS MIDSHIP TRANSDUCER PAGE 284

Men - sur

20 STRESS PSI CHERSOUNG 0 445 CHERSCURG 0 386 * * * 5+8 BURSTS COMMENTS 544 415 404 510 327 220 327 510 502 CYCLES STRESS STRESS
CYCLES STRESS PSI
PSI
PSI
---MAVE IND-- 1ST MCDE 515 1369 1035 1317 1272 1462 O 0 391 1523 151 1509 2155 1074 P-TG-T NUMBER STRESS OF PSI BURSTS 0 10 16 53 15 7.7 0 2125 2201 5442 2269 2552 2431 1121 5109 2620 2627 1503 2300 2399 2559 5537 5720 5305 6162 1158 3063 6543 6451 5202 5583 2845 5513 5233 4044 2200 5537 :72 164 109 173 165 157 20 175 165 171 25 10200 054 10200 054 45 CCAST F3G 10196 053 30 47 JUAST ANI. 0 47 CCAST PAIN NITE 04-00 47 0CAST 4ATA 004 10202 054 REL SWELL SWELL LENGTH SEA DIR FEET TEMP MEATHER 10 48 OCAST FCG 004 13213 053 10213 053 313P 030C 49 SCAST FOG 0C4 13196 353 49 CCAST FOG 013P 030C 49 CCAST F3G 054 10190 053 070P 0300 46 CCAST FCG 004 10213 055 004P 0400 47 0CAST 084 10202 054 146F 0400 50 0CAST 003 10045 046 146P 040C 50 0CAST 003 10045 040 . SWELL BARGM AIR
HT INCH TEMP
FEET HG 070P 0300 46 10196 070P 0300 004 1021 070P 030C 0139 0400 013P 0300 004P 0400 004 10 0030 10 400 900 9400 LONGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HT LENG. KTS SPEED FEET FT KNOTS REL REL MAVE MIND MAVE PU DIR SECS 004-54 x 15.4 02 05 01 056 063.1 1695 1695 1 15.4 02 05 01 10 5 295 113.6 070P 070P 27.8 02 05 01 10 70 236 132.7 013P 013P 32.4 05 20 01 10 10 10 0 01 32.3 04 15 01 70 32.5 133.0 004P 004P 236 132.7 013P 013P 32.4 05 20 0 00 0049 236 132.7 013P 013P 32.4 05 20 0 132.5 004P 304P 32.3 04 15 0 295 113.6 070P 070P 27.8 02 05 C 132.7 013P 013P 132.5 004P 004P 295 113.6 070P 070P 295 113.6 070P 070P 27.8 02 05 50 225 123.0 004P 92 05 SHIPS PROP 32.4 27.8 4 02-14-75 46-42 N 056 06 56 08°0 008-54 N 15-4 34.3 4CE EAN215 044 62-14-75 46-42 N 008-LATITUDE MCLEAN217 001 02-18-75 MCLEAN217 001 02-18-75 CAT 1600 4CLEAN217 062 62-13-75 MCLEAN217 002 32-16-75 60H 06 22-16-75 MCLEAN217 302 02-16-75 50m 07 2030 MCLEANZI7 002 02-16-75 50% 05 20-16-75 *CLEATEL7 CG3 02-10-75 5400 14 02-19-75 01 04-14-75 MCLEAVELT 604 04-19-75 40LEAN 217 COS UZ-16-75 ACLEAN217 003 02-16-75 ACCEAN217 003 02-16-75 03 02-16-75 DATE TRIP INTERVAL ANALCS LESBOOK TAPE INDEX NUMBER NUM CI *09 HCLEAN215 044 MCLE 14217 001 46LE14217 504 MCLEAN217 001 409





SEA LAND WILEAN 1975 SEASON SURMARY TAPE LYBS MIDSHIP TRANSDUCER	PAG: 296	XTX	
	A LAND MCLEAM 1975 SEASON SUMMARY TAPE LVES MIDSHIM TRANSOUCER	PAGE 294	

	138 138	LENGTH SEA	
TAPE INSEN DATE LATITUDE	COURSE RPM CIR DIR	DIR FEET TEMP WEATHER	SUNSTS COM
TRIP INTERVAL TIME	LONGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HT LENG	D 1-4	NUMBER AMS MAX MEAN CYCLES STRESS STRESS
	o, č	FEET 10	IST MODE
MCLEANZI? 004 02-19-75 60W 15 0400	229 133.0 004P 004P 32.5 02 05 04	304P 3330 52 GCAST FAIN 054 054	151 5080 2 738 416
MCLEANZI7 004 02-19-75	229 133.0 004P 004P 32.5 02 05 02	004P 0300 52 0CAST RAIR 003 10200 054	1396
MCLE4V217 005 02-19-75	225 133.8 004P 004P 32.5 02 05 02	304.2 6300 53 50.4.57 003 10196 055	1633
MCLEAV217 305 32-19-75	229 133.8 404P 364P 32.6 32 05 02	364P 0300 53 0CAST 003 13196 055	154 1607 6 515
4CLEAN217 305 02-19-75 630	229 133.8 004P 004P 32.0 02 05 02	664P 63C0 53 CCAST 003 10196 055	1545
WCLEAV217 005 C2-19-75	225 133.8 004P 004P 32.6 02 05 U2	004P 033C >3 UCAST 003 10196 055	160 3225 6 0 647
MULEANZIT 306 02-19-75 43-00 .	014-40 W 31.8 05	354P 0456 54 14AST 054 10169 353	1585
MCLEAN217 006 02-19-75 43-05 %	014-+0 4 31.4 0499 0499	0049 0400 54 00487	1531
#CLEAN217 606 02-19-75 43-00 1.	229 130.4 349 0.4-40 W 31.8 05	334P 6466 24 35451 304 13189 353	102 374 3 746 738
MCLEANZI7 006 02-19-75 +3-05 N	014-40 1 31-8 65 20 04	064P 6460 24 CLASE 004 10149 058	117 4197 2 799 769
MOLEAN217 007 02-19-75 45-00 65h 25	214-40 235, 129-6 J535 J535	314 3430 54 PT SLSY 334 10000 650	1107 0 0 721
#CLEA4217 007 02-19-75 43-04 %	314 239 129.0 3535 3535 34 31.0 02 02 05 34	314P 0403 54 PT CLDY 034 105cc 356	317, 3199 0 0 759
4CLEAN217 GOT 02-19-75 43-05 1	129.0 3535 0535 014-40 4 31.0 02 05 04	3142 0400 5. 21 0.01	152 4377 1721 547 959
#CLEAV217 037 02-15-75 43-06 N	14 23 125.6 0535 0535 014-40 % 31.5 02 05 04	014P 0400 54 PT CLDY 604 10666 656	163 5554 1911 635 1013
õ	0.4-40 4 31.6 06.05 06.05 0.4-40 4 31.6 06.05 25 05	0300 0400 50 PT CLOY	177 8401 3803 2422 552 STANSCARD
401-14-17 006 02-19-75 45-08 N	7 255 129.4 0605 0605 01.4.4 31.4 36	330P 640C 50 PT CLEY	7751 53 5244 1051 STANSOAND

PAGE 30A	PAGE 309	X71
ANALCG LGGGOR TAPE INDEX NUMBER NUM DATE LATITUDE CUURSE RPM UIR DIR SECS	REL SWELL Shell LENGTH SEA DIR FEET TEMP WEATHER	P-TO-T NUMBER STRESS OF PSI BURSIS CCMMENTS
TRIP INTERNAL TIME LUNGITUDE SHIPS SEA REL HAVEAAVE NUM GAT SPEED STATE WIND HI LENG KTS SPEED FEET FT KNGTS KNGTS	SWELL BARCH AIR HT INCH TEMP FEET HG	NUMBER RMS MAX MEAN CYCLES STRESS STR
MCLEAN217 008 02-19-75 43-00 N 255 129.6 0605 0605 0605 0605 05	030P 0400 56 PT CL5Y 004 10195 055	0350 30 SEAS UFF STANBOARD E 171 2985 1035 502
4CLEAN217 008 02-19-75 43-38 N 255 129-6 0605 0605 50W 32 2000 014-40 W 31.6 06 25 05	030P 0400 50 PT CLDY 004 10195 055	370. 51 SEAS OFF STARBOARD E
MCLEMV217 009 02-19-75 +3-03 N 255 129.0 0715 0715 2500 014-40 W 31.5	060S 060C 57 PT CLUY	179 3385 2239 353
461641217 009 62-19-75 45-03 N 255 129.0 0715 0715 65# 36 25 06	G60S 0600 S7 PT CLOY 007 10242 053	1751 30 2947 883
466647217 569 62-19-75 43-38 N 255 129.0 0715 0715 668 668 31.5 66 25 66	060S 0ACC 57 PT CLUY 007 10242 053	175 3359 3709 845
MCLEANZIT 009 02-19-75 43-03 N 255 129.0 0715 0715 6015 60N 36 25 06	0505 060C 57 PT CLDY 037 10242 053	174 2902 2780 807
*(LEAVILL 010 62-26-75 +5-00 N 255 128.9 0375 0375 050 014-43 H 31.4 02 05 04	0605 0600 56 PT CLDY	171 2854 2475 176
4CLEAN217 010 02-20-75 +3-33 N 255 128.9 0375 0375 63h 38 0400 014-40 W 31.4 02 35 04	0605 0600 50 PT CLOY	173 2638 2003 784
MLEAN217 010 62-20-75 43-64 N 255 128.9 0375 0375 60m 39 05m 39 0400 014-40 K 31.4 02 05 04	0605 0600 56 PT CLOY	176 3001 2+52 792
461631217 319 62-26-75 43-03 N 255 128.9 0375 0375 538	0605 0400 56 PT CLDY	173 7425 10 1051 769
ACLEANZI7 JII 02-20-75 45-08 1 270 129.3 0225 01	3225 0660 57 PT 01.08 068 13.72 055	155 3163 2292 750
	0225 0600 57 PT CLOY	102 2765 16 22.09 658
WOLEANZIN DIE G2-20-75 43-00 N 270 129-3 0225 03.5 03.5 03.5	6225 9506 57 PT CL. Y	100 5720 159 575
MCLERV217 011 C2-20-75 45-05 . 270 1.29.3 0225 01	0225 000 57 PT CLEY	5: 03 252 13 830
#CLEANZIT 012 62-20-75 57-52 660 127.5 063P 043P	3045 5060 55 PT CLC)	1.7 0.74.5 24.37 54.27
MELESTY217 012 02-20-79 59-52 1, 246 129.5 043P 043P	00+5 0600 55 PT CLOY	192 409) 2155 868 1000

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2041

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10051 055

0228 06CC

#CLEAV219 016 02-21-75 34-52 74 270 113.4 063P 063P 063P 60# 60# 62 0490

012

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5563

LCGBGUK INDEX NUM DATE LATITUDE	REL REL MAVE SHIPS PROP WIND MAVE PO TOE COURSE RPM DIR DIR SECS	REL SWELL SWELL LENGTH SEA DIA FEET TEMP WEATHER	P-TO-T NUMBER STRESS OF PSI BURSTS COM	COMMENTS
TRIP INTERVAL TIME	LCNGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HI LENG KTS SPEED FEET FT KNDIS	SWELL BAROM AIR HI INCH TEMP FEET HG	NUMBER RMS MAX CYCLES STRESS STRESS PSIMAVE IND 1ST MCDE	MEAN STRESS PSI
4CLEAN219 010 02-21-75 59-52 14	031-00 h 27-7 06 25 05	0225 0600 58 RAIN 012 10051 055	213 2513 2277	175
#CLEAN219 016 02-21-75 39-52 N 6430 0430	031-06 W 270 113.4 068P 063P	0225 06CC 58 RAIN 012 13051 055	212 2509 1774	220
MCLEAV219 017 02-21-75 59-52 4	031-00 W 275 111.9 0225 0225	0225 06CC 59 AMIN 014 10123 054	831.0 65 205 3930 4158	418
#J.EAN219 017 02-21-75 39-52 N	031-00 W 27.3 08 35 06	0225 056C 59 RAIN U14 13123 054	200 3960 4082	+34
ACLEAN219 017 02-21-75 34-52 N 66C0 07	031-00 M 270 111.9 0225 0225	0225 36CC 59 KAIN 014 10123 054	9559 67	383
#CLEAN219 017 02-21-75 39-52 N	031-00 W 27.3 08 35 06	0225 060C 59 RAIN 014 10123 054	202 4181 4798	418
ACLEANZIS 018 02-21-75 35-53 N	349-20 W 21.3 07 50 05	0225 0800 62 RAIN 314 13167 649	184 3465 2620	577
HCLEAN219 018 02-21-75 35-53 N	270 087.	0225 03C0 62 PAIN 014 10167 049	10351 49	71.6
#CLEAR219 016 02-21-75 39-53 N	045-20 W 21.3 047.4 0225 0225	6225 030C 62 FAIN 314 13167 049	10951 37	716
#CLEAN219 018 02-21-75 37-53 N 50h 12 1200	045-20 w 21.3 07 30 05	0225 050C 62 RAIN 014 10167 049	3839 50	693
*CLEAN219 019 02-21-75 39-53 N	045-20 4 21.0 039.5 0675 0675	067P 0800 62 CCAST 008 10159 050	193 4765 0	479
#CL:44219 019 02-21-75 39-53 V	045-20 4 21.5 01 02 02	067P 0860 62 CC4ST 608 10159 650	174 2437 3 850	11.
461547219 319 62-21-75 39-53 N	049-23 4 21.0 31.0 32 02	067P 0800 02 LCAST	17, 6332 2925 1328	457
WILEANZIS 019 02-21-75 39-53 1, 600 604 16	7, 270 039.5 06.75 06.75 04.5-27, 21.4 01 02 02	0679 0800 52 CC451	160 2500 4	654
MCLEANZIN 020 02-21-75 39-53	39-52 , 270 092-8 0902 0909	0225 0406 56 66A57 009 15120 554	175 3115 25 2132	434
WCLEANZIG 320 02-21-75 35-55 X	270 092.6 350P 090P	0225 0600 66 CCAST	150 2379 8 1934	47.4

AAALOG LCGACOK TAPE INDEX NUMGER NUM DATE LATITUDE COUNSE PRM DIR DIR SECS DIN FE	SWELL LENGTH SEA FEET TEMP WEATHER	P-TO-T AUAEER STRESS OF PSI BURSTS COMMENTS
TRIP INTERVAL TIME LONGITUDE SHIPS SEA REL MAVEMAVE SWELL NUM GMT SPEED STATE HIND HT LENG HT KTS SPEED FEET FT FEET KNOTS	BARCH AIR INCH TEMP	NUMBER RMS MAX MEAN CYCLES STRESS STRESS STRESS PSI PSI PSIMAVE IND 1ST MCDE
MCLEAN219 020 02-21-75 39-53 N 270 092.4 090P 090P 0225 08	0900 66 0CAST 10120 054	165 2704 13co 479
MCLEAN219 020 02-21-75 39-53 N 270 692.8 090P 090P 0225 08	3 C2	160 4352 3 1127 404
MCLEA:219 321 02-21-75 39-53 . 270 065.3 300 093 0675 09	053C 67 CCAST 5 10070 057	192 2056 853 -762
MCLEAN219 021 02-21-75 39-53 N 270 089.3 000 000 0675 05 60N 22 2400 045-20 N 21.8 03 10 02 005	050G 67 CCAST	193 1653 655 -653
MCLEAV219 021 62-21-75 39-53 14 270 689.3 030 030 6675 05 50% 23 2400 045-26 x 21.6 03 10 02 065	050C 67 0CAST 10070 057	4890 6 190 1828 1089 -549
MCLEAN219 321 62-21-75 39-53 N 270 689.3 600 600 6675 65 60M 24 2400 645-20 N 21.6 03 10 02 655	0500 67 CCAST 10070 057	194 1593 822 -541
"(EAV219 022 02-22-75 34-53 N 270 091.6 0675 0675 0455 06 60# 25 0400 045-20 # 22.3 02 05 02 008	0600 66 3CAST 10051 C55	163 2549 0 -724
MCLEAN219 022 62-22-75 39-53 1, 270 691.6 0675 0675 0685 08 60m 26 0400 045-20 m 22.3 02 05 02 008	0600 66 CCAST 10051 055	182 2737 0 -752
46LEAN219 022 02-22-75 39-53 14 270 691.4 6475 0575 0455 06	0600 50 ECAST	135 2544 0 -732
MCLEANZIG 022 02-22-75 34-53 N 270 691.6 0675 0675 0675 06	0600 66 LCAST 10051 055	175 2 2 700 -709
MCLEAN219 023 02-22-75 34-53 1 2-2 091.0 091.0 0075 0075 0075 00	00.00 0c 0CAST 10051 055	2094 6 723 -648
#CLEAN219 023 02-22-75 34-93 H 270 091.0 0575 0575 0455 06	0600 65 CCAST 10051 055	135 275 7 906 -534
MCLEAN219 023 02-22-75 39-55 M 270 091.6 0675 0675 0455 00 60N 31 0800 040-20 4 22.3 02 05 02 010	00.06 00 CCAST 10051 355	116 2304 3 929 -503
MCLEAN219 023 02-22-75 39-53 M 270 591.4 6475 0675 0455 0455 06 60M 32 045-20 405-20 405-20 405-30 02 05 05	0600 66 (CAST 10051 655	134 2493 4 4 164 -518
VCLEA-219 024 02-22-75 39-53 4 270 091.1 0455 0455 0455 055 00	500 60 1045T	165 2460 6 929 -564
#CLEAN219 024 02-22-75 39-53 N 270 091.7 3455 0455 0655 06	050C 50 CCAST	185 2544 18 18 18 18 18 18 18 18 18 18 18 18 18

ANALGG LGBGOK TAPE INDEX TAPE INDEX NUMBER NUM DATE LATITUDE COURSE RPM DIR DIR SECS	SEL SWELL SWELL LENGTH SEA 018 FEET TEMP NEATHER	OF CONS
TRIP INTERVAL TINE LONGITUJE SKIPS SEA REL MAVEWAVE NUM GMT SATE NIND HT LENG KTS SPEED FEET FT KNDTS KNDTS	SHELL BAROM AIR HT INCH TEMP FEET HG	NUMBER RAS MAX MEAN CYCLES STRESS STRESS STRESS STRESS
MCLEAN219 324 02-22-75 39-53 N 270 091.7 0455 0455 60m 35 1230 045-20 H 22.4 07 30 05	0455 0600 60 CCAST 010 10068 048	195 4334 10 967 -557
MCLEAN219 024 02-22-75 39-53 N 270 091-7 0455 0455	0455 0500 60 CCAST 010 10046 046	5309 15 1492 -541
46LEAN219 025 02-22-75 35-44 N 270 089.6 0675 0675 60 05 50 05 50 07 50	3455 0503 59 CCAST 310 10153 049	194 5366 2940 -572
MCLEAN219 025 02-22-75 39-44 N 270 069.6 0675 0675 50075 504 38 05-22-75 057-05 W 21.8 06 35 07	0455 0600 59 UCAST 010 10153 049	167 3298 3054 -572
46LEAN219 025 02-22-75 35-44 N 270 089.6 0675 0675 6515 6511 6511 057-05 W 21.0 08 35 07	0455 0600 59 UCAST 010 10153 049	3416 35 2033 -732
MELEANZI9 525 02-22-75 39-44 N 270 089.6 0675 0675 075	0455 0600 59 0CAST 010 10153 049	8218 37 174 3765 2336 -635
*CLEAN219 026 02-22-75 39-44 N 272 088.6 0435 0435 6435 6435 6435	0435 060C 70 0CAST 006 10185 050	209 1965 929 -602
MCLEAN219 026 02-22-75 39-44 N 272 088.6 0435 0435 65 65 65 42 2000 057-05 M 21.6 08 35 07	0435 0606 70 0CAST 006 10166 050	206 3717 8 975 -496
#FLEAN219 026 02-22-75 39-44 N 212 088.0 0435 0435 0735 058.0 05 35 07	0435 0600 70 CCAST	4131 5 807 -549
MCLEAW219 026 02-22-75 34-44 N 272 058.5 0435 0435 55 87-05 W 21.0 08 55 07	0435 050C 70 6045T	3530 8 875 -595
4555 50 50 50 50 50 50 50 50 50 50 50 50	0435 000C 60 CCAST 006 10233 050	100 1957 792 0 -523
MCLEAN219 027 02-22-75 39-44 N 272 090.9 0435 0435 668 46 668 46 2430 057-35 N 22.2 04 15 04	0435 0600 60 CCAST 306 10233 050	155 1591 4 708 -500
#CLEAN219 327 62-22-75 36-44 % 272 090.9 6435 0435 6435 6435 6435 6435	0435 0400 60 UCAST 000 10255 050	142 731 0 -603
FELSANZI9 027 02-22-75 35-44 N 272 090.9 0+35 0435 65% 48 48 2400 057-05 H 22.2 04 15 04	0435 030C 60 0C45T	139 1243 0 0 -310
401EAN219 328 32-23-75 34-44 N 272 051.4 302P 332P	0435 0530 45 PT GLFY	130 0 255 0 -755
400 400 50 02-23-75 35-44 N 27-55 N 22.4 36 25 35 35	0435 0500 43 PT CLCY	167 522 327 3 0 -625

ANALCG LCGSOOK TAPE INCEX SMLPS PRUP WIND WAVE PO SMINSER NUM DATE LATITION COURSE RPM DIR DIR SECS	SEEL SWELL SEA SWELL LENGTH SEA OIR FEET TEMP WEATHER	P-TG-T NUMBER STRESS OF PSI GURSIS COMMENTS
TRIP INTERVAL TIME LUGGITUDE SHIPS SEA REL M SPEED STATE MIND KTS SPEED F KNOTS	SWELL BAROW AIR HI INCH TEMP FEET HG	AUNGER RMS MAX MEAN CYCLES STRESS STRESS STRESS STRESS TRESS TREST
MCLEAN219 328 02-23-75 39-44 N 272 091.9 034P 032P 6	0435 060C 43 PT CLEY	175 0 0 0 - 709
MCLEANZIG 323 32-23-75 39-44 N 272 091.9 032P 002P C	0435 066C 43 PT CLOY 003 10247 051	134 159 0 141
PCLE4:219 029 02-23-75 35-44 N 272 089.7 002P 002P 66m 53 0500 0500 057-05 M 21.9 02 05 01	0435 060C 62 PT CLDY 003 10224 050	146 256 0 -510
MCLEAN219 329 G2-23-75 39-44 h 272 089.7 002P 002P 65m 54 0800 057-05 W 21.9 02 05 01	0435 0500 62 PT CLOY	130 261 0 -534
19.7 002P 332P	0435 060C 62 PT CLOY 003 10224 050	131 464 0 -567
MCLETY219 325 02-23-75 39-44 N 272 U49.7 032P 002P 0	0435 069C 62 PT CLOY 003 10224 050	115 441 3 3 -572
CLEAVILD G30 G4-23-75 39-4+ N 272 081.0 069P 069P G	G43S 3500 55 PT CLDY 303 10195 055	125 198 0 -572
#CLEANZIG 030 02-23-75 35-44 N 272 051.0 069P 069P 6	3435 0600 55 PT CLOY 003 10195 055	86 472 243 0 -511
MCLEANZIY 050 02-23-75 39-44 N 272 061.0 069P 059P (0435 0600 55 PT CLOY	97 220 0 -442
MCLEAN219 030 02-23-75 39-44 N 272 081.0 069P 069P	0435 050C 55 PT CLOY	130 420 0 -328
EANZEL 331 34-23-75 35-54 3 569-33 4 20.0 051.9 010P 31CP 350 03	075F 0530 56 FCEST C25 15161 050	132 433 5 6 0
941 E 5412 21 331 62-23-75 39-54 11 272 641.7 373P 670P 668 548 52 52 63	0709 0500 50 00ASF 003 10161 056	136 243 0 30
EANZZI 032 02-23-75 39-54 % 272 070-1 070P 070P	370P 0500 58 1CA21 Cu2 Loll2 055	155 084 572 0 243
MALEMAZZI 032 02-23-75 39-54 M 275 270.1 370P 070P 50 00 50 00 00 00 00 00 00 00 00 00 00	070P 0500 5d CLAST 003 13112 055	140 823 557 0 243
#CEEAN221 032 02-23-75 39-54 . 275 070.1 070P 070P	070P 0500 58 CCAST 003 10112 055	75, 0 0 228
#CLEA4221 632 02-23-75 39-54 W 273 070-1 070P 070P	070P 050C 53 JCAST	0.00

TAME INDEX NUMBER NUM DATE LATITUDE	SHIPS PRUP WIND WAVE PO	SMELL LENGTH SEA DIR FEET TEMP WEATHER	PSI SUASTS COMENTS
TRIP INTERVAL TIME NUM GMT	LONGITUDE SHIPS SEA REL MAVEWAVE SPEED STATE WIND HT LENG KTS SPEED FEET FT KNOTS	SAELL BAROM AIR HT INCH IEMP FEET HG	CYCLES STRESS STRESS STRESS CYCLES PSI PSI PSI PSI PSI
MCLEAN221 033 02-23-75 39-54 N	V 273 066.3	43 DENSE FJG 10120 650	151 441 0 235
MCLEAN221 033 02-23-75 39-54 N	0.69-03 W 16-2	43 DENSE FOG 13123 350	141 935 0 242
MCLEAN 221 033 02-23-75 39-54 1	3 273 060.3 303-33 10.2	43 JENSE FOG	130 372 0 220
MCLEAN221 034 02-24-75 39-54 N 60h 13 0400 C	069-03 x 13.6	43 DENSE FGG 10111 051	135 722 0 228
MCLEAN221 034 02-24-75 39-54 N 60m 14 02-24-75	V 260 055.9 069-03 H 13.6	43 CENSE FUG 10111 G51	119 296 0 235
WCLEAN221 034 02-24-75 39-54 N	V 220 055.9 069-03 n 13.0	43 DENSE FOG 10111 JS1	129 714 0 311
90LEAN221 034 02-24-75 39-54 N.	. 280 055.9 369-03 x 13.6	43 DENSE FOG 10111 051	121 603 0 527
401E14223 002 02-28-75	381 110.2 0995 0995 26.8 02 05 01	1445 080C 44 CLEAR 001 13090 051	163 815 0 0 0
401EaN224 302 02-25-75 51E 96 2490	25.3 32 05 31	1445 6300 44 CLEAR 001 10090 651	167 993 1 1171 345
ACLEANZES 002 02-28-75 61E 07 2400	26.3 02 05 01	1445 0500 44 CLEAR 001 10090 051	173 346 0 348
*CLEAN223 602 02-28-75 518 08 2-28-75	051 110.2 0995 0995 25.8 02 05 01	1448 6400 44 CLEAR	165 490 0 303
4CLEAV223 003 03-01-75	0.01 122.3 0.995 0.995 29.0 62 05 02	1445 3800 73 PT CL3Y	154 652 0 74
4CLEAN223 333 03-01-75	551 122.3 3955 0395 29.6 62 65 02	1448 0300 70 PT CLUY 002 10063 050	155 156 0 96
MCLEAN223 003 03-01-75 51E 11 04-00	23.5 02 05 02	1445 CSCC 70 PT CLDY	159 639 6 215
MULEA'223 003 03-01-75 615 12 0+00	27.0 27.3 39.95 059.5	1445 CAOC 70 P1 CLDY	100 1752 0 0 237
4CLE44223 604 63-01-72 6500	351 121.4 1445 1445 29.5 02 05 03	1448 0800 73 00481	152 667 0 252

ANALCG LCGBOCK TAPE INDEX SHIPS MINASE NIE DATE LATITUDE COURSE	PRUP MIND MAVE PD RPM DIR DIR SECS	REL SWELL SWELL LENGTH SEA OIR FEET TEMP WEATHER	P-10-1 NUMBER STRESS OF PSI BURSTS COMMENTS
TRIP INTERVAL TIME LCMGITUDE NUM GMT	SEA REL N STATE WIND SPEED F KNOTS	SAELL BAKCM AIR HI INCH TEMP FEET HG	AUMBEN AMS MAX MEAN CYCLES STRESS STRESS STRESSAAVE IND 1ST MODE
ACLEAN223 604 03-01-75 6800 61E 14 6800	29.5 02 05 03 .	1445 060C /3 0CAST 003 10054 059	154 1705 6 0 511
MCLEAV223 004 03-01-75 081 2	121.4 1445 1445 29.5 02 05 03	1445 Cacc 73 GCAST 003 10054 059	2046 0 355
MCLEAN223 504 33-01-75 061	29.5 02 05 03	1445 C60C 73 CCAST 003 10054 059	2031 67 0 341
MCLEAN223 005 05-01-75 38-26 N 031	1 121.0 1445 1445 29.5 04 15 03	1445 C60C 73 CCAST 003 10042 060	115 4722 8 1008 467
4CLEAN223 005 C3-01-75 36-26 N 081 6 1 1200 064-10 W 2	29.5 04 15 03	1445 65C6 73 6CAST	106 1994 11 297 -3055
4CLEAN223 005 03-01-75 38-26 N 081	1 121.0 1445 1445 29.5 04 15 03	1445 0600 73 CCAST 003 16042 060	110 4656 8 1119 -2951
4CLEAN223 305 G3-01-75 36-26 N 361 6 12 12 12 30 64-10 H 2	1 121.0 1445 1445 29.5 04 15 03	1445 060¢ 75 3CAST 003 10642 060	3647 4 793 -3363
4CLE4N223 306 03-01-75 38-26 N 081	1 119-1 1215 1215 29-0 07 30 04	1445 060C 70 RAIN FUG 006 10022 061	6524 25 FOLLING 10 DEG 59 2535 1112 -3129
46LEAW223 606 03-01-75 36-26 N J81 66-13 N J81	1 119.1 1215 1215 29.0 07 30 04	1445 060C 70 MAIN FDG 006 10022 061	105 2565 1505 -3107
MCLEAN223 006 03-01-75 34-26 N 06-10 W 29.	29.0 07 30 04	1445 060C 70 SAIN FGG 036 10022 061	99 2457 21 1312 -3377 3 DEG
46164N223 006 03-01-75 38-26 4 064-10 h 2	1 117.1 1215 1215	1445 0630 70 FAIN FUG 006 13022 061	100 6472 52 ROLLING 10 DEG PORT
46LE4N223 007 03-01-75 30-25 N 331	1 119.2 06.5 0335	0995 0600 a6 8AIN 038 09957 000	110 8516 34 1801 -2714
4CLe4N223 337 35-01-75 35-26 5 55-10 A 2	1 117.2 C865 CG65	0595 7500 66 5413 000 0557 600	107 3433 1215 -2744
4CLEAN223 007 03-01-75 36-25 V 081 61E 27 2000	1 119.2 0365 C435 25.0 08 35 06	0998 0600 66 FAIN 003 05597 060	152 26 2795 -2781
101 307 03-61-75 36-26 . 304-10 n 3	20 05 35 0805	0595 0600 56 NAIN	5273 1545 -2750
PCLE24223 008 03-01-75 35-26 N 361	11 116.4 0005 0085	0595 0600 65 FAIN LIGHT VI.	3358 32 1809 -2536

PAGE 38A	PAGE	386 HAX
ANALGG LGGGGGK TAPE 140EX TAPE 140EX NUMBER NUM DATE LATITUDE COURSE RPM DIR DIR SECS D	REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER	P-TO-T NUMBER STRESS OF PSI BURSTS COMMENTS
TRIP INTERVAL TIME LONGITUCE SHIPS SEA REL MAVEMAVE NUM GMT SPEED STATE WIND HT LENG KTS SPEED FEET FT KNUTS	SWELL BARCH AIR HT INCH TEMP FEET HG	NUMBER RMS MAX MEAN CYCLES STRESS STRESS FYSI PSI FYMAVE IND 1ST MODE
MCLEAN223 034 03-01-75 38-26 N 081 118.4 0885 0885 0	0995 0600 65 RAIN LIGHTNING 008 05990 065	91 2609 1275 -2929
WCLEAN223 006 03-01-75 38-26 N 081 118.4 0855 0385 0	0995 0600 65 RAIN LIGHTNING 008 09990 065	6075 29 1416 -2885
MCLEAN223 006 33-01-75 38-26 N 031 113.4 0865 0885 0	0595 060C US PAIN LIGHTNING 008 05950 065	119 2617 2780 -5100
MCLEAN223 609 63-02-75 35-26 H 081 119.0 0995 0995 0	3995 0603 66 RAIN LIGHTNING 006 09992 065	106 2639 1462 -5160
MCLEAN223 009 03-02-75 38-26 N 381 119.0 0395 0995 0	0995 0500 65 FAIN LIGHTNING 008 09992 065	6309 50 HEAVY NOLL 127 3010 1890 -3226
MCLEAN 223 5 05 03-02-75 35-26 N 031 119.0 0995 0995 0 61€ 35 04.00 00+10 W 29.0 08 40 06	0995 0600 66 RAIN LIGHTRING 008 09992 065	125 5212 31 HEAVY POLL 125 2276 1349 -3137
#CLEAN223 009 03-02-75 34-26 N 081 119.0 0995 0995 0	0995 0600 66 KAIN LIGHTNINS 008 09592 065	165 41 HEAVY ROLL 165 2113 1705 -5063
4CLEAV223 010 03-02-75 34-26 N 081 119.0 0545 0545 0	0995 0600 57 CCAST 006 10000 054	137 273 3492 3160 -5003
MCLEAN223 010 03-02-75 30-20 N 031 119.0 0545 0545 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0995 0500 57 CCAST 006 10000 054	122 2670 1201 -2944
#CLEAN223 010 03-02-75 36-26 H 331 110.0 3545 0545 0	0595 0600 57 (CAST 0595 056	122 2772 29
FCLEAN223 010 03-02-75 38-26 0 031 119-0 0545 0545 0	0595 0000 57 CCAST 006 10000 054	4819 22 1512 -2929
#CLEAR223 011 03-02-75 40-25 14 031 11910 0998 0998 04	0595 0600 59 JCAST 006 10035 064	112 2051 1371 -3248
#CLE4N223 011 05-64-75 40-25 N 031 119-0 0995 0995 09	0495 350C 59 6CAST 036 13035 034	3594 25 SLOW HEAVY ROLL 110 2054 1206 -5411
ACLEAN223 011 03-02-75 40-20 N 031 119.0 0995 0395 04	0995 0600 59 UCAST 006 10035 064	7199 15 SLCH PEAVY KULL 115 2893 356 -3404
461537223 611 03-02-75 40-26 h. 531 119.0 5995 5995 5	3595 3500 59 CCAST	5571 2376 1057 -5396
401544223 012 03-02-75 40-26 4 070 119.4 1205 1265 1	1495 0390 59 CCAST 005 15064 562	91 3202 18 1252 -3322

TAPE INCEX SHIPS PROP WIND MAVE PO SWELL NUMBER NUM DATE LATITUDE CCURSE RPM DIR DIR SECS DIR	L LENGTH SEA FEET TEMP WEATHER	STRESS OF POLICES COAMENTS
TRIP INTERVAL TIME LCNGITUDE SHIPS SEA REL MAVENAVE NUM GMT SPEED SPEED SPEED FEET FT KIS SPEED FEET FT KNOTS	SHELL BAROM AIR HT INCH TEMP FEET HG	CYCLES STRESS STRESS STRESS CYCLES STRESS STRESS PSIMAVE IND 1ST MODE
MCLEAN223 012 03-02-75 4G-26 N 076 119.4 1205 1265 1495 06 06 25 04 06	0600 53 CCAST 066 13C64 062	94 3588 1052 -3337
#CLEAN22? 012 03-02-75 +0-26 N 076 119.4 1265 1265 1495 05 618 47 166. 166. 049-37 # 29.1 06 25 04 00	030 58 CCAST	96 9158 9515 -3337
MCLEAN223 012 03-02-75 40-26 N 076 119.4 1265 1265 1495 00 00 015 016-37 M 29.1 06 25 04 00	0300 53 CCAST 006 13064 362	93 3536 1364 -3389
PCLE4N223 013 03-02-75 40-26 N 076 118.0 1495 1495 1495 000 0195 0195 000 000 000 000 000 000 000 000 000 0	G600 57 GCAST G06 10092 000	65 4166 1067 -3122
MCLEAN223 013 03-02-75 40-26 . 076 115.0 1495 1495 1495 065 018 61E 50 2600 045-37 M 25.7 03 10 04 01	060C 57 0C45T	73 5662 1967 -3107
.13.0 1495 1495 1495 03 10 04	036 10092 060	11410 14
-GLEAV223 013 03-02-75 40-26 N 076 118.0 1495 1495 1495 000 049-37 M 28.7 03 10 04	069C 57 3CAST	3652 19
MCLEAN223 014 03-02-75 40-25 N 076 119.5 177P 177P 1495	0400 54 CCAST 006 10102 060	67 4174 949 -3745
HGLEAN223 014 03-02-75 40-26 N 076 119.5 177P 177P 1495 05	0.00 50 PCAST	64 4011 1149 -3585
MCLEAN223 014 03-02-75 +6-26 N 076 119.5 177P 177P 1495	000 58 00AST	64 3640 1215 -3952
FCLEAN.225 014 03-02-75 40-26 0 049-51 119-5 1779 1779 0-4-95 0-4-95 014 56 56 56 2400 0-4-95	036 10102 060	67 9125 4265 15 1371 -3693
MCLEAM223 015 03-03-75 40-26 M 090 119.4 1695 1695 1495 00	300C 55 PT CLUY	73 3647 7052 -3550
MCLEAN223 015 03-03-75 40-26 1 090 119.4 1595 1495 1495 000 000 000 000 000 000 000 000 000 0	0667 56 PT CLOY	65 3477 1527 -3762
MCLEAN223 015 03-03-75 40-26 N 030 119.4 1695 1695 1495 000	0000 5c PT CLOY	63 7443 4 771 -3923
MCLEAN223 015 03-03-75 40-20 N 090 119.4 1095 1695 1495	3600 56 PT CL2Y	64 3632 2 30 -3605
**CLEAN225 016 03-03-75 40-26 349-37 W 20.0 082.0 1575 1575 1575 00	069C 50153	74 8275 3930 0 0

LCGBGCK INDEX NUM DATE	REL REL HAVE SHIPS PROP NINO WAVE PD LATITUDE COURSE 9PM DIR DIR SECS	REL SWELL SWELL LENGTH SEA DIS FEET TEMP MEATHER	P-TO-T NUMBER STRESS OF PSI BURSTS CUMMENTS	NIS
ERVE	LONGI	S HI INCH TEMP	CYCLES STRESS ST	MEAN STRESS PSI
5 015 03-03-75 61E 02 030	15 40-26 N 949-37 W 20.0 082.0 1575 1575	1575 060C 57 PT CLOY 005 10153 U61	75 477 C 0 1.	178
16 03-03-	40-26 N 350 082.0 1575 1575 0800 049-37 k 20.0 06 25 02	1575 0500 57 PT CLOY 005 10153 051	76 4006 0 1	170
16 03-03-75	\$ 40-26 N 090 082.0 1575 1575 0800 0800 0800 080 25 02	1575 060C 57 PT CLOY 3C5 10155 061	76 4212 0 21	203
5 017 03-03-75 61E 05 120	1200 036-03 N 19.7 06 25 02	1575 060C 54 CLEAR 005 10168 061	73 3425 0 6	693
17 03-03-75	1200 036-06 W 19.7 06 25 02	1575 060C 54 CLEAR 005 10168 051	74 3016 0 8	875
03-03-72	, 41-48 N 390 081.0 180 180 1200 035-38 W 19.7 06 25 02	1575 0600 54 CLEAR 305 13158 Gel	70 0 3157 0 7	113
4CLEAV225 017 03-03-75 0120	1200 1200 036-03 N 19.7 06 25 02	1575 0660 54 CLEAR 035 10166 061	73 4346 0 8	805
4CLEAM225 018 03-03-75 61E 09 100	41-48 N 390 U80.9 180 180 1000 336-38 19.7 03 10 01	1465 060C 55 CLEAN 304 10169 069	7543 3462 0 0 6	696
MCLEAV225 616 03-03-75 10-	10001 600.050 036-03 N 03-45 N 03 10 01	1465 050C 55 CLEAR 024 10169 C69	74 0 3231 0 0 7	112
4CLEAN225 018 03-03-75 06	1600 036-08 W 19.7 03 10 01	1465 CGGC 55 CLEAR 004 10169 069	76 7803 0 8	345
4CLEAN 225 010 03-03-75 61E 12 16	1600 -41-48 N 536-35 19-7 036-39 150 01	1465 C600 55 ULEAS 004 101.9 369	5555 50 505 50	930
461547.225 019 03-03-75 516 13 20	2530 41-43 N 371 361.3 159P 153P	159F 0600 500 UEAx	33 5935 0 0 10	1003
*CLeAV225 315 33-33-75 61e 14 20	2000 030-02 11.7 061.6 1599	1592 0000 50 CLEAN 004 1018, CSS	70 5050 0 13	1300
19 03-03-75	2000 41-48 N 071 081.0 159P 159P	159P 3600 56 CLEAF	75 6340 0 0 15	1515
05-05-75	2000 1540 071 061.0 155P 155P	1597 0000 0000 0000	555.7 60 5.00 5.00 13	1552
*CLE4/225 020 03-63-7>	081.5 159P 159P 159P	155P 3600 56 CLEAR	420%	99.7

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SEA LAND MCLEAN 1975 SEASON SUMMARY	Ā
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SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVOS MIDSHIP TRANSDUCE	

LENGITUDE SHIPS SEA REL H	REL SWELL SEA SWEATHER DIR FEET TEMP WEATHER	STRESS OF COMPENTS
GMT SPEED STATE HIND KTS SPEED KNOTS KNOTS	SWELL BANDM AIN HI INCH TEMP FEET HG	CYCLES STRESS STRESS STRESS CYCLES STRESS STRESS STRESS CYCLES STRESS STRESS PSIAAVE IND 15T HODE
#CLEAN225 020 03-03-75 41-48 N 071 081.5 159P 159P 1 61E 18 2400 034-08 N 13.3 04 15 01	159P 000C 50 CLEAR 0C4 1019C 057	76 2603 0 1515
MCLEAN225 020 05-03-75 41-48 M 071 081.5 159P 159P 1	159P 360C 56 CLEAR 034 16199 057	84 2422 0 1493
MCLEAN225 020 03-03-75 41-45 N 071 081.5 159P 159P 1	159P 0600 56 CLEAN 004 10150 057	70 2734 0 1440
MCLEAN225 021 03-04-75 41-48 N 371 051.5 159P 159P 1 59P 51E 21 0400 035-08 M 19.8 03 10 01	155P 0500 54 PT CLUY 003 1018U 056	4524 0 1325
HCLEAN225 021 03-04-75 41-43 N 371 081.5 159P 159P 1 61E 22 340G U36-U3 W 19.8 U3 LO 01	159P 050G 54 PT CLOY	5353 0 1537 6+ 2315 0 1537
MCLEA4225 021 03-04-75 41-48 11 071 081.5 159P 159P 1	159P 0600 54 PT CLOY 033 10130 355	5327 0 0 157~
CLEAN225 321 33-04-75 41-48 N 371 081.5 159P 159P 1	1599 0500 54 PT CL DY 003 10130 056	5001 0 0 1515
ACLEAN225 022 03-04-75 41-48 N U71 080.5 159P 159P 1	1599 360C 53 3CAST 303 10162 058	5096 0 0 1186
MCLEAN225 022 03-04-75 41-48 M J71 060.5 159P 159P 1	1592 0600 53 0.CAST 003 10182 055	52 2162 0 1240
MCLEMA225 022 03-34-75 41-43 N 371 080.5 159P 159P 1	159P 050C 53 UCAST 0C3 10182 056	73 2313 0 1255
PCLEANZ25 022 33-34-75 41-48 4 335-0 4 19.5 34 15.99 15.99	1597 0500 53 FCAST 003 10182 050	451/ 0 0 1203
#CLEAN225 023 03-04-75 45-45 N 25-00 N 19.7 001.0 159P 159P 150P	1559 0000 53 ACAST 003 10183 060	75 0 0 0162 75
WCLEAK225 343 63-04-75 43-45 x 371 061.0 159P 159P 1	1599 0500 53 3CAST 003 10135 050	72 2526 0 983
MCLEAN225 023 03-64-75 42-42 N 374 061.0 159P 159P 1	1599 0500 53 (CAST 069 10183 060	75 2516 0 1510
461643225 023 03-04-75 43-45 M 37; 051.0' 1599 1599 1	1597 0600 52 0CAST 003 19165 060	75 2191 0 1047
PCLEARAZES 024 63-54-75 43-45 R 371 043 1557 155P 1	1599 069C 54 FCG 35AST 003 1016c 059	75 2466 0 1999

ANALCG LCGGOOK TAPE INDEX TAPE INDEX NUMBER NUM DATE LATITUDE COURSE RPM DIR DIR SECS	REL SWELL SWELL LENGTH SEA 012 FEET TEMP MEATHER	P-10-T NUMBER STRESS OF PSI SUNDIS CONMENTS
TRIP INTERVAL TIME LONGITUDE SHIPS SEA REL MAVEMAVE AUM GMT SPEED STATE WIND HT LENG KTS SPEED FEET FT KNOTS	SWELL BARCH AIR HT INCH TEMP FEET HG	NUMBER RMS MAX MEAN CYCLES STRESS STR
#CLEAN225 024 03-64-75 43-45 N 371 056.1 159P 159P 61E 34 1630 020-66 # 19.5 03 10 01	159P 0600 54 FUG 0CAST 003 10166 055	75 2303 G 1292
MCLEAN225 524 03-64-75 43-45 N 071 080.1 159P 159P 61E 85 1600 020-30 W 19.5 03 10 01	159P 0600 54 FDG 0CAST 003 10106 059	72 2741 0 1471
*CLEAV225 024 03-C4-75 43-45 4 37: 300.1 159P 159P	159P 0600 54 FUG 0CAST 003 10106 055	71 4249 0 1604
MCLEANZZS 025 03-04-75 43-45 N 071 080.0 159P 159P 61E 37 2000 026-00 M 19.5 03 10 01	159P 06J0 53 FUG 0C4ST 003 10169 058	69 4769 6 3 1054
MCLEAR225 025 03-04-75 43-45 N 071 080.0 159P 159P 61E 38 2000 026-00 W 19.5 U3 10 01	159P 0600 53 FCG 0CAST 003 10169 056	79 2362 0 1641
#CLE4%225 025 03-04-75 43-45 N 071 080.0 159P 159P 61E 40 2000 026-00 W 19.5 03 10 01	159P 0600 53 FUG DCAST 003 10169 058	75 2518 0 1731
#CLEAN225 026 03-64-75 43-45 N 071 679.4 159P 159P 61E 41 2400 026-00 N 19.5 03 10 01	159P 0800 53 FCG SAIN 003 10160 058	73 2451 0 1685
WELEAN225 026 03-04-75 43-45 N 071 079-4 155P 159P 61E 42 2400 026-00 W 19-5 05 10 01	159P 080C 53 FCG AAIT. 003 10100 056	1021 0 0 2272 19
ACEEAN225 026 03-04-75 43-45 N 071 079.4 159P 159P 52c-00 N 15.5 03 10 01	1596 3830 53 FDG FAIN	00 5542 2214 0 1701
MCLEAN225 026 03-04-75 43-45 N 071 079.4 159P 159P 61E 44 243C 026-60 W 19.5 03 10 01	155P 080C 53 FOG BAIN 303 10160 055	70 4704 2513 0 1751
*CLEAN225 627 03-65-75 45-45 N 371 085,0 159P 159P 61E 45 9430 020-05 N 19.5 02 02 01	159P 3300 53 FUG PAIN	600 2325 0 1537
#CLEEN225 027 63-65-75 43-45 N 071 080.0 1599 159P 618 46 0:00 020-00 m 19.5 02 05 01	159F 06CC 52 FCG 5AIN	66 4035 6 0 1612
ACLEAN225 027 03-05-75 43-45 4 371 043.0 1599 1599 618 47 0400 020-00 A 14.5 02 02 03 01	1599 0500 53 110 941.	70 5475 0 5475
PCLEAN225 027 03-05-75 43-45 N 371 380.0 159P 159P 559P 559P 559P 559P 559P 559P	155P 0800 53 FUU AAIN	5279 2082 0 1567
#CLEAN225 328 65-05-75 45-45 % 771 003-1 157P 159P 61E 49 6550 0550 020-03 % 19-5	1596 0300 55 FOW HAIN 302 10155 050	70 407 2191 0 1530
PCLEA4225 026 03-05-75 43-45 N 071 050.1 159P 159P	159P 0000 53 FUG ANIN	605,

	19 0	REL SWELL	PITO-I NUMBER
ANALICG LIGBGOK TAPE INDEX	DATE LATITUSE COURS ROW DIA UN SECS	SHELL LENGTH SEA DIR FEET TEXP NEATHER	STRESS OF PSI BURSTS COMMENTS
ALP INTERVA	TUDE SHIPS SEA SPEED STATE KTS	AVE SWELL BARCH AIR ENS HT INCH TEMP FT FEET HG	NUMBER FMS MAX MEAN CYCLES STRESS STR
#CLEAN225 620 03-05-75	43-45 N 371 080.1 15	159P 080C 53 FOS RAIN 002 10135 056	65 4145 0 0 1575
23 03-05-19	06.10 43-45 N 371 380.1 159P 153P	155P 0:00 52 FUG RAIN 002 10135 056	70 4133 2214 0 1545
WCLEAM225 029 03-05-75	o	1545 080C 55 FUG RAIN 002 10159 054	1961
MCLEAN225 029 03-05-75	15 46-12 4 371 356-1 1095 1095 1236 15-42 W 19-5 34 15 32	1545 080C 55 FCG AMIN C02 10139 054	3550 0 0 1508
25 03-05-7	46-12	1545 0800 53 FCG KAI 4 002 10139 054	77 5193 0 1500
9 33-05-7	,,	1545 050C >3 FUG RAIN 002 10139 054	2095
33-05-7	1500 015-42 h 17.4 04 15 02	1315 0300 52 FCU RAIN 002 10112 US3	75 2102 0 14+1
19	9	131S 050C 52 FCW 5AIN 002 10112 055	67 4190 0 1470
*CLEA:.225 030 03-05-75	46-12	1315 08CC 52 FC. RAI'V 002 10112 055	31 4554 0 1765
	75 46-12 11 071 079.5 1315 1315 1515 1600 1600	1318 0800 52 FCG 5ALV	30 4725 0 0 1775
(2)	2000 11 50 64-12 1315 1315 1315 022	1315 00°C 52 F.F.N 002 TOLLG 055	0 0 0 0 174 0 0
#CLFA4227 031 03-05-75 20	00	.318 0300 >2 341N 002 13110 055	3100 0 55
03 03-05-7	71-	1315 3803 52 FAIN 502 10116 553	75 1635 0 105
4CLEA4227 031 05-05-75 40	2000 015-42 x 14.9 03 1315 1315	1315 0866 52 RAIN 302 10110 035	3419 0 103
4.1.EA1227 634 03-C5-75	75 46-12 4 371 360.0 1515 1315 24.0 35 40 10 01	1315 0500 52 CC451	2057 0 0 59
MCLEAN227 032 03-05-75 40	75 46-12 11 371 0.00.0 1315 1315	1315 030C 52 CAST	53 2573 0 0 28

ANALOS LOSBOJN TARE INDEA NUMBER NOM DATE LATITUDE COURSE RPM DIR SECS	97L SMELL SEA SEA MEATHER OF FEET TEMP MEATHER	STACES CONTENTS PSI DURSTS CONTENTS
RIP INTERVAL TIME LONGI	SWELL BARCH AIR HT IN TOWN AGE T AG	NUVBER RMS MAX MEAN CYCLES STRESS STR
#CLEAN227 034 03-05-75 46-12 N 015-12 N 14.0 000.0 1515 1315 01.	131S 3630 52 66.8T	77 152 0 0 103
#CLEAN227 032 03-05-75 46-12 N 071 060.0 1515 1515 515 515	1315 030C 52 GCAST	3064 1635 0 0 61
MCLEAN227 035 05-06-75 +6-12 N 07. 000-0 1315 1315 616 09 01 015-42 M 14.0 03 10 01	1315 CSCC 51 CCAST 002 101.05 355	3245 0 0 55
#CLIAN227 033 03-C6-75 46-12 0 071 060-0 1315 1315 01 01 01 01 01 01 01 01 01 01 01 01 01	1315 0500 51 LCAST	70 1057 0 103
MCLEA.4227 035 63-00-75 40-12 7, 377, 600.0 1515 1515 615 615 11 615 615 615 11 615 615	1315 3500 51 35451 002 10155 655	2950 0 0 103
#CLEAN227 033 05-06-75 40-12 \	1315 3800 51 00AST 032 032	3593 0 695 0
#CLEAVA27 354 05-06-75 40-12 315-42 371 359-8 1315 1315 612 612 612 612 612 612 612 612 612 612	131S 0500 51 00457	80 1702 0 74
MCLEAN227 054 03-06-75 46-12 % 071 059.8 1315 1315 of of other old 14 0300 015-72 m 14.6 03 10 01	1315 0800 51 00487 002 10105 055	3254 6 0 74
#CLEAN227 034 03-03-75 40-12 : 371 059.6 1315 1315 015 01E 15 0500 015-91 14.0 03 10 01	1318 0830 81 JCAST 002 10105 695	75 1643 0 51
03-66-75 +6-12 1	131S 0000 51 00454	23 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6
*CLEAN227 335 35-30-75 40-13 4 371 303.0 1315 1515 515 515 515 515	1515 0400 000 c.G # #134	30,49 30 0 58
JUNE 227 055 05-06-75 46-13 1, 071 000.0 1315 1515 015 015 015 015 015 015 015 015	131S 0300 50 FtG 8A1, 002 10169 055	73 1606 0 1.0
#GLEAN227 335 65-00-75 48-12 . 371 300.0 1315 1515 515 51E 51E 19 01 120 31 10 01	1315 0300 50 FUN KHIN 632 101.9 055	311. 0 0 118.
ACLEANZZ7 035 02-06-75 +6-13 M 07-03 M 14-5 03 1315 1315	. 131S 0800 50 FCG RAIN	3725 0 0 105
MCLEAN227 050 03-00-75 40-15 A 07-05 071 000-2 051P 151P	1315 0000 10050 055	77 0 0 1702 0 115
*CLEAN227 336 33-06-75 +6-13 % 371 060.2 151P 161P	1315 0800 50 00457	2183

HIP TARASCUCES	
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SEA LAND MCLEAN 1975 SEASON SUMMARY TARE LVUS MIDSHIP TRANSUCCER	- TCT 3076
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SEA LAND ACLEAN 1975 SEASON SUMMAY TAPE LUGS MIDSMIP TRANSDUCER PAGE 454	SEA LAND WOLEHU 1975 SEASON SUPPLY PA	TAPE LYBS TICSAIP TAPASSOCES
ANALGS LCGSCON TAPE INCEX NUMBER NUM DATE LATITUDE COURSE RPM DIR DIR SECS	SWELL SWELL SCA. SWELL LENGTH SCA. DIG FEET TEMP .CATHER	STRESS OF CONTRACTS
TRIP INTERVAL 1148 LONGITUDE SATE NUM GAT NIN	11 14.50 A1.5 11 14.54 HERT HO	CVCLES STRESS STRESS WIDTO
#CLEA.227 036 03-06-75 48-15 077-05 8 14.6 03.2 161P 161P	7515 0800 50 ECLDT	3375 0 0 207
-	75455 64 00800 516.1 655 4505.	70 1739 0 173
5-15 . 05-05 050-0 140P 146P	1465 0900 50 00+5	77 3471 1552 0 165
#CLE14227 338 03-06-75 40-13 4 356 059.0 1+6P 146P	1465 3830 40 CA\$1 001 10103 081	1. 3000 0 0 112
10 01 10 01 146P	1465 5000 40 407	0
FULSA1227 058 05-06-75 40-13 h 056 050.0 1469 1469 01-03 8 10 01	1465 0000 43 CLAST	
#CLEAN227 035 03-06-75 40-13 1 256 056-0 146P 145P	1465 0000 48 00451	72, 1305 0 0 373
0.5 01	1128 320C 43 CAST	55.50 0 0.50 0.55
*CLEX:227 0.59 05-07-75 -0-15 \ 057-35 4 12.9 052.0 100 100 01	3 1	45 L21 C 610
10 00 00	1125 0864 1007t 055	53 250 0 0-151
641 044 0.000, 0.00 0.000, 0.0	1125 5466 4076 403	152.
-2.645.229 501 05-11-75 50-5. 8 50-5. 8 5.05.47 8 5.05. 52 5.05	1015, 647	200
ACLEAN229 001 03-11-75 50-73 005-77 H 32 05-77 H 32 05-77 H	10.304 24.74	134 589 0 0806 0 1826
-46.1844225 001 03-11-75 50-52 % -47 m . 1779 52 05 05,-47 m . 02 05	10104 64	0 227
-60.548.229 601 03-11-75 55-02 0.000-47 0 52 05	40 45 CV.) X 74 CV.) X	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
MCLEAN229 002 03-11-79 30-02 N 200-47 6 52-3 34 1015 1015 01	1015 0406 50 4115 04750.5	19.7 25.72 total a crass charge system a
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ANALCG LCGGCOK TAPE INDEX SALPS PROP HIND MAVE 20 MINARE NIM DATE LATITUDE CCURSE RPM DIK DIK SECS	FEL SAELL SEA SEA DIA FEETHER	PITCHT NUMBER STATES STATES OF STATES PS1 GURSIS COMMENTS
IRIP INTERVAL TIVE LUNGITUDE SHIPS SEA RE NI NUM CAT KIS SPEED STATE NI KIS SPEED STATE NI KIS AN		CYCLES STRESS STRESS STRESS STRESS - ST
401644229 502 03-11-79 50-02 300-47 244 132.4 1615 1615 1615 01 01 01 01 01 15 01	1615 046C 50 RAIN SHUNERS 001 10139 046	2433 0 OVER GROUND SPEED 195 1070 0 -959
MCLEAN229 GOZ G3-11-75 30-02 N 2+4 152.4 1618 1618 518 518 07 1630 303-47 K 52.3 34 15 31	161S 04CC 50 AMIN SHCKERS	2035 0 OVER CROUND EPECD
WCLEAT.229 002 03-11-75 50-02 000-47 244 132.4 1015 1015 01	1615 0400 50 FAIN SHOWLES	169 2079 0 CVER GALLING SPEED
#GLEAN229 033 03-11-75 50-02 \ 244 133.4 1015 1015 5015 518 518 518 518 518 518 518 518 518 5	1615 0400 49 UCAST 001 10120 045	99 1200 0 -111
461644239 003 03-11-75 55-02 4 544 183.4 1615 1615 615	1615 0400 45 JUAST 001 10126 045	135 3540 0 0 -632
#CLEAN229 503 03-11-75 56-02 N 244 133.4 1615 1615 615 516 51 615 618 618 618 618 618 618 618 618 618 618	1618 0400 49 00AST 601 10126 040	150 1005 0 -2002
46154.229 333 03-11-75 50-02 N 244 133.4 1615 1615 615 615 615 615 615 615 615 6	1615 0400 49 00451 001 10120 045	101 4450 1 625 -744
462541229 004 03-11-75 50-02 N 244 153.5 177P 177P	1165 0500 51 PT CLOY	55 1702 0 -315
**************************************	1155 3500 51 PT CLOY	3404 1 198 1 576 -552
10_6247229	1165 0500 51 FT CLOY	3474 5 0 0 -010
*CLEAN229 304 03-11-75 50-02 % 240 135.5 177P 177P	1165 5500 51 PT 61.5Y	93 1724 0 -002
MCLEAN224 505 03-12-75 50-72 % 244 153.0 1105 1105 1105 018 17 018 018 17 0450 000-47 % 53.0 04 12 02	1155 0650 53 PT CLEY	77 - 0 0 2192
FCLEARAZZ9 005 , 05-12-75 50-04 N 240 240 153.0 1105 1105 1105 50 02 01N 18 01 185 020 000-47 s 55.0	1165 0600 35 97 01.3Y	25.11 0 -340
MCLEAN229: 005 05-12-75 50-02 h 244 133.0 1165 1165 62 65-47 h 35.0 54 L5 02	1165 0500 53 FT ULDY 002 10152 USO	73 2176 603 -774
CLEAN229 Jus 03-12-75 20-62 5 244 135.0 1105 1165 62 62 61 25 05-47 v 35.0 04 15 62	1165 0460 53 21 01.09	72 - 192 - 192
MCLEAN229 GGS 03-12-75 30-02 N 244 135-1 1165 1165	1105 0000 54 PT 01.5Y	575.5 0 0 -750

SEA LAND MCLEAN 1975 SEASON SUMMANY TAPE LVES MIDSHIP TRANSDUCER	ACLEAN 1975 SEASON	
ANALCG LCGBOUK TAPE INDEX TAPE INDEX NUMBER NUM DATE LATITUGE CCURSE RPM DIR DIA SECS DIR	REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER	P-TU-T NUMBER STRESS OF PSI BURNTS COMMENTS
TRIP INTERVAL TIME LCNGITUDE SHIPS SEA REL MAVEMAVE NUM GMT SPEED STATE WIND HT LENG KTS SPEED FEET FT KNUTS	SAELL BARUM AIR HI INCH TEMP FEET, HG	NUMBER ENS MAX MEAN CYCLES SIRESS SIRESS SIRESS SIRESS - SIRESSMAVE IND IST MODE
MCLEAN229 006 03-12-75 50-32 1 000-47 K 33.0 34 15 02 1165 1165 1165 1165 1165 1165 1165 116	1165 660C 54 PT CLDY 002 10155 051	65 4341 0 -863
MCLEAN229 006 03-12-75 5C-52 N 244 133.2 1165 1165 116 61N 25 020-47 W 33.0 04 15 02	1165 0600 54 PT CLOY 002 10155 051	5062 0 -555
#CLEAN229 006 03-12-75 50-02 N 244 133.2 1165 1165 116 61# 24 0800 030-47 # 33.0 04 15 02	1165 0600 54 PT CLDY 002 10155 051	3538 0 -714
MCLEAN229 GO7 03-12-75 44-15 N 244 132.0 0715 0715 170	1165 0600 52 CLEAR 002 10173 052	81 4014 0 0 372
MCLEAN229 007 03-12-75 44-15 N 244 132.0 0715 0715 116	1165 0600 52 CLEAR 032 10173 052	3471 0 0 416
4CLEAN229 007 03-12-75 44-15 N 244 132.0 0715 0715 116 514 27 1200 017-36 W 32.2 04 15 01	1165 0600 52 CLEAR 002 10173 052	3426 0 512
MCLEAN229 007 03-12-75 44-15 N 244 132.0 0715 0715 116 61W 28 1200 017-36 H 32.2 04 15 01	1165 0600 52 CLEAR 002 10173 052	120 4281 0 512
MCLEAN229 008 03-12-75 44-15 N 244 120.4 0265 118	1165 0600 54 PT CLDY 002 10186 052	3055 0 SEA FLAT LON SAELL
46_624223 000 03-12-75 44-15 N 244 120.4 0265 116	1165 0500 54 PT CLOY 002 10186 U52	3062 0 SEA FLAT LCN SAELL 92 0 -1393
MCLEAN229 006 03-12-75 44-15 N 244 120.4 0265 1600 116	1165 3600 54 PT CLOY 002 10186 C52	98 3464 0 SEA FLAT LUM SWELL 98 1397 0 -1363
*CLEAN229 000 03-12-75 44-15 , 244 120.4 3255 116	1165 0630 54 PT CLOY 002 19186 652	77 2/87 0 SEA FLAT LON SWELL
ACLEAN229 009 03-12-70 44-15 N 244 120.4 U64P 064P 026 61k 33 2000 017-36 N 20.4 U4 L5 01	0265 0500 54 PT CLOY 002 10149 049	3436 2 2 -1234
PCLEAW229 039 03-12-75 44-15: 214 120.4 054P 054P 026 61% 54 2005 017-30: 20.4 04 15 01	0265 0500 54 PT 010Y 002 10145 049	133 2542 1 726 -1316
*CLEAR225 G09 03-12-75 44-15 4 244 120-4 354P 364P 320 614 35 2060 617-35 4 29-4 34 15 01	0265 0600 54 PT CLOY 002 10149 049	137 3342 0 0 -1353
FCLEAR229 009 03-12-15 44-15 R 244 120.4 364P 004P 026	0265 3600 54 PT CLOY 362 10145 045	145 2550 1434 0 -1443
*CLESN229 C10 03-12-75 44-15 N 244 120.0 0035 0055 019	019P 0600 53 0CAST 002 10162 055	153 3635 2 713 -1437

SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LUSS MIDSHIP TRANSDUCER PAGE 468 SEA LAND MCLEAN 1975 SEASON SUMMANY TAPE LVBS MIDSHIP TRANSDUCER PAGE 48A

-326 -387 -003 -1463 -1487 -1428 -1430 -1547 -1532 BURSTS COMMENTS -1415 -1405 STRESS --- KAVE ING-- 1ST ACDE 600 369 940 O 659 0 0 1531 0 0 NUMBER CYCLES STRESS 1404 1390 1739 1734 1821 1873 1557 1709 1533 1278 1332 1248 1456 1687 1360 1717 2757 2558 101 P-10-1 STRESS PSI 3639 3503 3658 4653 3426 3924 3179 2801 3412 2099 4004 110 153 169 163 1+1 142 120 1.50 197 131 10149 USY CLAST FAIN SHUNEFS 0 56 CCAST RAIN SHEWENS 10149 059 56 CCAST RAIN SHONERS 1 US9 013P 04GC 56 0CAST RAIN SHOWERS 002 10145 059 REL SWELL SWELL LENGTH SEA DIR FEET TEMP WEATHER. 59 PT CLUY SS PT CLOY 019F 060C 53 CCAST 002 10162 055 10173 055 0 55 CCAST 10173 055 0 55 CCAST 10173 055 10173 055 10173 055 002 10162 055 0199 0600 53 0CAST 10150 001 BAROM AIR INCH TEMP HG 201 55101 10150 61107 10150 0199 0400 0139 0400 0050 005 0400 002 10 002 10 021P 0440 0139 0400 0219 0400 3439 3400 013P 040C 021P 04CC SWELL HT FEET 921P 3135 910 LONGITUDE SHIPS SEA REL MAVEMAVE SPEED STATE WIND HT LENG KTS SPEED FEET FT KNOTS PO REL REL WAVE WIND WAVE PO DIR DIR SECS 3 5 0 5 5 5 0 0 0 0 10 0 3 29.3 04 15 01 5 36-53 1 273 121.0 0.2P 042P MCLEAN229 011 03-13-75 44-15 N 244 120.4 042P 042P 042P 01 03 01 238 120.6 036P 036P 16 W 29.4 03 10 0 017-36 W 29-3 04 15 0 017-36 W 29-3 04 15 0 017-36 W 29.4 01 03 0 10 0367 P 055P 032-04 W 29-4 33 10 0 MCLEAN229 611 03-13-75 44-15 % 244 120.4 042P 342P 617-36 W 29.4 01 03 0 HCLEAN229 013 03-13-75 36-53 N 246 120.5 055P 055P 55P 51M 49 120.5 120.5 032-04 N 29.4 03 10 (120.5 055P 055P 01 29.4 03 10 39-5. h. 232-04 4 29.4 03 10 03 SHIPS PRUP 332-0+ m 29.4 017-36 N 29 238 MCLEAN229 012 03-13-75 44-15 N 23 017-36 H MCLEAN229 012 03-13-75 44-15 N 23 LATITUDE MCLEAN229 GII 03-13-75 44-15 N 61N 42 04-00 017 MCLEAN229 010 03-12-75 44-15 N 51 40 40 01: #CLEAN229 010 03-12-75 44-15 N ACLEAN229 010 03-12-75 44-15 N 61W 38 2400 01 1200 38-53 N WELEAN229 013 03-13-75 36-53 N SMT CMT MLLEAN229 013 03-13-75 618 52 13-13-75 SCLEAN 229 013 .03-13-75 #CLEAN229 014 03-13-75 61% 53 1 DATE TRIP INTERVAL ANALGS LEGBGOK NC. NUMBER

SER LAND MELEAN 1975 SEASEN SUFFRAT 1876 LVES MICSRIF TRANSCOLER PAGE 498		TABLE SOCIETY OF THE STATE OF T
ANALCG LCGGGGK TAPE INDEX NUMBER NUM DATE LATITUDE COURSE RPM DIR GIR SECS	REL SKELL SKELL LENGTH SEA DIR FEET TENP MEATHER	P-TO-T NUMBER STPESS OF STEELSS OF PSI BURSTS CCAMENTS
TRIP INTERVAL TIME LONGITUDE SHIPS SEA REL MAVEMAVE NUM GMT SPEED STATE WIND HT LENG KTS SPEED FEET FT KNOTS	SMELL BAKOM AIR HT INCH TEMP FEET HG	CYCLES STRESS STRESS STRESS STRESS NAVE IND 1ST HCDE
MCLEAN229 014 03-13-75 38-53 N 273 121.0 082P 082P 61M 54 1666 032-04 N 29.5 02 05 01	048P 040C 59 PT CLOY	156 1256 0 -595
MCLEAN229 014 03-13-75 34-53 N 273 121.0 082P 082P 51% 55 1600 032-04 W 29.5 02 05 01	046P 0400 59 PT CLOY 002 10119 060	156 1375 0 -505
MCLEAN229 014 03-13-75 38-53 N 273 121.0 082P 082P 61M 56 1660 032-04 M 29.5 02 05 01	048P 040C 55 PT CLDY 002 10119 060	2973 0 -595
*CLEAN229 015 63-13-75 33-53 N 273 120.6 0475 0475 015 015 015	0575 0400 60 PT CLDY	2535 0 2131 147 1211 0 -735
PCLEAN229 015 C3-13-75 38-53 N 275 120-6 0875 0875 618 58 58 032-04 N 29.4 02 05 05	CS7S 04C0 60 PT CLDY	131 5040 0 0 -047
MCLEAN229 015 03-13-75 34-53 N 273 120.6 0875 0875 515 518 518 59 51 518 518 518 518 518 518 518 518 518	0875 0400 c0 PT CLDY	136 2757 0 -530
MCLE4N229 015 03-13-75 30-53 h 273 120.6 0475 0375 618 618 60 618 618 618	3475 3430 60 PT CLOY 002 10122 050	143 1516 0 -558
MCCEAN229 0.6 U3-13-75 3J-53 N 273 069.1 0875 0875 614 61 61 61 2.00	0875 0400 55 PT CLOY 032 13146 358	129 2438 0 750
#CLEARI229 016 03-13-75 36-53 1, 273 069-1 0875 0675	0875 0450 55 PT CLOY	140 6414 0 C 635
MCLEAN229 016 03-13-75 34-53 N 273 069-1 0475 0475 015	0875 0400 55 PT CLOY	144 5731 2661 0 046
40LE46.225 016 03-13-75 34-53 N 275 069-1 0875 0875 01 61% 64 2400 03-04 N 10-0 02 05 01	3575 3436 55 PT CLOY	137 2202 0 0 2020
ACLEANIZE C17 03-14-75 30-58 V 275 369-0 1545 1545 618 01 0400 032-54 A 10-6 02 05 05 01	0875 0600 59 CLEAN 002 10152 055	144 4827 0 0 0
MCLEAN231 017 03-14-75 20-53 V 773 069.0 1945 1945 618 01 018 02 05 01	0875 0600 59 CLEAN	133 4673 0 259
MCLEAN231 017 35-14-75 30-53 N 273 069-0 1545 1545 614 01 614 03 0400 032-04 N 10-4 02 05 01	0075 0600 59 CLF4K	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
MCLE44231 017 03-14-72 36-53 11 273 009.0 1045 1045 518 618 04 04 05 05 05 01	0675 0400 59 CLEAR	13. 457. 0 -82
4CE 547231 018 03-14-75 34-53 N 273 069.0 0985 0995	0875 0000 59 01544	4324

TAPE INDEX NIME DATE LATITUDE COURSE RPH DIR SECS DIR FEET	LL TH SEA T TEMP WEATHER	P-TO-T NUMBER STRESS OF PSI BURSIS COMMERIS	214
TAIF INTERVAL TIME LCNGITUDE SHIPS SE NUM GMT SPEED STA	BARUM AIR INCH TEMP	CYCLES SIFESS STRESS S CYCLES SIFESS STRESS S PSI PSI PSI	FEAN STRESS PSI
4CLEAN231 018 05-14-75 36-53 N 273 069.0 0985 0985 0875 0600	10169 055	3974 0 0 149 1716 0	-82
HCLE4N231 C18 03-14-75 36-53 N 273 069.0 0985 0985 0875 0600 000 01 01 000	10 59 CLEAR 10169 059	145 4304 0 0 145	-82
#CLE1:231 014 03-14-75 38-53 % 273 069.0 0965 0965 0675 0600 9000 05 01 0000 002 0	30 59 CLEAR 10109 059	3001 0 0 0	-62
	30 58 CLEAK 10183 C61	152 2719 0 0	37
HCLEAN231 019 05-14-75 39-16 N 273 069-1 0428 0428 3878 06 618 10 1266 344-63 W 15-8 01 02 01 032	0600 50 CLEAR 10183 061	14+ 2577 1240 0	:
03-14-75 39-16 N 273 069-1 0425 0425 0875 0875 1203 044-00 H 16-8 01 02 01	0600 59 CLEAR 10163 Col	145 2719 0 0	237
PELESAZSI 019 03-14-75 39-16 A 273 069-1 0425 0425 0875 00	0600 53 CLEAR 10183 061	139 2662 1137 0	208
PECLEANZ31 020 03-14-75 39-16 N 273 068-5 003P 003P 0425 04	0400 60 CCAST 10152 062	146 2370 0 0	۵ ا
03-14-75 39-16 N 273 063-5 063P 033P 042S 052 160C 044-60 H 16.7 05 20 01 002	0400 63 CCAST 10152 352	147 2459 0 0	-15
20 03-14-75 39-16 N 273 068.5 303P 003P 042S 16.1 16.1 054-03 M 10.7 05 20 31	046c 60 3CAST 10152 652	0 1993 0 151	;
-CLEAN231 020 03-14-75 39-16 M 273 046-5 003P 033P 0425 0	040C 65 (CAST 10152 652	150 2303 926 0	130
34-10 h 344-00 h 10-3 05 05 0085 0085	0400 62 0CAST	132 1456 0 0	14
9-16 4 273 051.3 0085 0085 0085 0032 002 002 002	0400 e2 00AST .	157 1672 7.13 0	175
39-16 N 273 072.0 0765 0765 0039	0400 65 MAIN SHOWERS DCAST	1679 965 0	527
03-15-75 55-16 N 273 069.0 0875 0375 003P	040C 64 CAST	173 2979 1463 0	345
03-15-75 39-16 N 273 069.0 0375 0475	040C 64 CCAST	3573 0 5573	356

LCGGCGK REL REL INDEX INDEX	REL SWELL SKELL LENGTH SEA	SS OF
ATE LATITUDE COURSE RPH DIR DIR	10040	× × × × × × × × × × × × × × × × × × ×
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MCLEAN231 023 03-15-75 39-16 N 273 069.0 0875 0875 61# 27 0400 044-00 M 15.8 03 10 02	003P 040C 64 0CAST 002 10234 049	4309 0 4319 172 1731 0 319
MCLEAN231 023 03-15-75 35-16 N 273 069.0 0875 0875 0875 0878 011 28 03 10 02	003P 040C 64 CCAST 002 10234 049	174 747 0 304
MCLEAN231 024 03-15-75 35-16 N 273 071.0 1095 1095 01095 01W 29 01W 29 0500 64-00 N 17.1 02 05 01	003P 0406 65 0CAST 002 10291 348	173 1203 3 148
MCLEAN23: 024 63-15-75 34-16 N 273 071.0 1695 1095 61M 30 0800 044-00 M 17.1 02 05 01	003P 040C 06 CCAST 002 10251 048	2659 0 203
MCLEAN231 024 03-15-75 39-16 N 273 071.0 1095 1095 614 51 32 35 01	063P 040C 66 CCAST 002 10291 046	170 2147 0 185
MOLEGN231 024 03-15-75 34-16 N 273 071.0 1095 1095 618 618 32 C630 044-30 M 17.1 02 05 01	003P 040C 66 0CAST 002 10291 048	171 2429 0 178
VCLEJN1231 025 03-15-75 39-29 N, 273 071.7 138P 138P 01H 33 1230 052-40 d 17.4 05 20 02	048P 040C 56 CCAST 002 10233 054	179 1002 0 0
MCLE4N231 025 63-15-75 39-29 N 273 071.7 138P 138P	002 10233 054	2303 0 7
-CLEANZ31 025 03-15-75 39-29 N 273 071.7 136P 138P 61M 35 1200 052-49 N 17.4 05 20 02	045F 040C 50 CCAST 0C2 10233 054	107 2013 960 0 14
MOLEGN231 025 C3-15-75 39-29 N 273 071.7 136P 138P 61H 36 1200 052-40 H 17.4 05 20 02	043P 0490 58 0CAST 302 13233 054	159 2543 0 -E
401 54 N23 1 026 03-15-75 39-29 N 273 072.3 117P 117P	7046P 0400 53 CCAST 034 10146 003	2050 0 0 -209
SANZ31 026 03-15-75 39-29 M 272 072.3 117P 117P 51% 51% 36 11 100 052-40 M 17.5 36 25 69	0+0P 0460 50 CCAST 004 10146 003	2117 0 6 216 7112
618 39 13-13-75 39-79 4 275 372-3 117P 117P	04ap 040C 58 CCAST 004 101+6 003	163 1675 0 0 -157
MCLEA423; 026 03-15-75 39-29 N 275 072-3 1179 1179 01H 40 1600 052-+0 N 17-5 06 25 04	0466 0400 58 CCAST	105 1173 -90
**************************************	046' 0400 00 06 487	180 2429 1196 -90
*CLCA4231 027 03-15-75 39-29 7 273 070.0 046P 048P	045P 046G 58 0CAST	7050 13 1837

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ATE LATTIONE COURSE KPM. DIK UIK	ָ ה	פופאספ דכי
TRIP INTERVAL TIME LONGITUDE SHIPS SEM REL MAVEMAVE NUM SMT SPEED STATE WIND HI LENG KTS SPEED FEET FI	SWELL BAKOM AIR HI INCH TEMP FEET HG	
KNOTS		
MCLEAN231 027 03-15-75 35-29 h 273 070.0 048P 048P 052-40 M 17.0 07 30 06	348P 0400 50 CCAST 006 10085 060	161 2979 15 2555 14
MCLEAN231 027 03-15-75 35-29 1, 273 070.0 048P 048P 61M 44 . 2000 052-4C M 17.0 07 30 06	346P 0400 58 CCAST 005 10055 050	180 3570 2228 59
#CLEAN231 028 03-15-75 39-29 N 273 068.0 048P 046P	348P 06CC 63 0CAST 010 13058 062	13074 35 2345 44
MCLEAR231 628 03-15-75 39-29 N 273 666.0 048P 043P	048P 060C 63 0CAST 010 10058 062	166 4101 2184 74
MCLEAN231 028 03-15-75 39-29 N 273 068.0 048P 043P	048P 060C 63 0CAST 010 10C58 C62	9036 45 2139 113
4CLEAN231 023 03-15-75 39-29 N 273 063-0 048P 048P 61M 48 2400 052-4C W 16.5 07 30 10	0489 0600 63 CCAST 010 10058 052	159 4576 2425 193
#IEAN231 C29 03-16-75 39-29 N 273 067.C 303P 003P 61* 49 C400 052-4C x 16.3 07 35 20	020 060C 05 CCAST 020 10085 052	1642 43 3335 312
MCLEAN231 029 03-16-75 39-29 N 273 067.0 003P 003P 003P 05-40 N 16.3 07 35 20	003P 060C 65 CCAST 02C 10085 C52	1358, 54 158 5512 3522 376
#CLEAN231 029 03-16-75 1-29 N 273 667.0 0032 003P 61# 51 C493 052-40 A 15.3 07 35 20	003P 360C 65 CCAST 020 10035 552	159 5267 2570 453
#CLEAN231 029 03-16-75 39-29 N 275 067.0 003P 003P 61H 52 0400 052-40 H 15.3 07 35 20	0032 0590 65 CCAST 020 10085 C52	161 5215 508 437
**LEA4231 050 03-16-75 39-29 % 270 070.5 0225 0225 614 53 0800 052-40 x 17.1 09 45 20	000 0600 61. CCAST 020 10139 055	144 5943 2778 355
*(LEA:231 036 03-16-75 39-29 N 279 070.5 3225 9225 525 51# 54 0503 052-40 K 17.1 39 45 20	020 0003 61 CCAST 020 10139 055	142 6240 4275 541
**************************************	000 0000 81 CLAST 020 020 10139 055	135 7325 2994 401
#CLEAR231 030 03-16-75 39-29 N 270 070.5 0225 0225 50 00 00 00 00 00 00 00 00 00 00 00 00	000 0000 61 CCAST 020 10139 655	139 5380 7392 312
4(154)233 031 03-16-75 33-54 K 270 070.0 0675 0675 618 618 01 1200 1 600-37 W 17.0 40 40 20	060 0000 55 CCAST 020 10209 625	1960, 500 7005 MANJAL RUN
*CLEAN233 031 05-16-15 39-54 N 270 070.0 0675 0675	000 0600 50 CCAST	15400 BB MANAL RUN

ANALCS INCENCIA TARE INDEX NUMBER NUM DATE LATITUDE COURSE RPM DIR DIR SECS	SWELL LENGTH SEA DIR FEET TEMP MEATHER	STRESS OF PSI COMMENTS
TRIP INTERVAL TIME LONGITUDE SHIPS SEA REL MAVEMANE NIM GMT SPEED STATE NIND HT LENG NIM SMI	SAREL BARCH ALK HI INCH TEMP FEET HG	AUMBER RMS AAX MEAN CYCLES STRESS STRESS STRESS
4CLEAN233 031 03-16-75 34-54 N 270 070.0 0675 0675 50 614 03 1200 060-37 W 17.0 68 40 20	300 0000 50 CCAST 020 13209 055	144 17553 66 MANUAL FUN
461 E	600 0600 55 0CAST 020 10209 055	19696 68 MANUAL RUN 153 7236 4361 -305
MCLEAN233 032 03-10-75 39-54 N 270 070.4 06.75 08.75 61m 05 14.00 060-37 N 17.1 07 35 15	0575 050C 50 CCAST C15 10226 053	17375 72 4740 -275
MCLEAN233 032 03-16-75 39-54 N 270 070.4 0675 0675 618 61k 06 1400 360-37 H 17.1 07 35 15	0578 060C 60 CCAST 015 10226 053	13960 62 152 6356 3348 -327
MCLEAN233 332 03-16-75 39-54 N 270 070.4 0675 0675 618 618 07 35 15	0675 060C 50 CCAST 0.5 1022c 053	150 6733 50 -290
WCLEAN233 032 03-16-75 39-54 N 270 070.4 0675 0675 0675 018 01 1400 066-37 W 17.1 07 35 15	0675 0600 60 CCAST 015 10226 053	155 5460 3551 -342
MCLEAN233 035 03-10-75 35-54 N 270 070.8 0675 0675 618 618 09 1600 000-37 # 17.1 06 25 10	0675 0600 64 PT CLCY 010 10240 652	149 5765 4398 -320
MCLEAN233 033-16-75 39-54 N 270 070.3 0675 0675 o14 10 1600 060-37 4 17.1 06 25 10	0575 0600 64 PT CLOY	155 4400 2318 -272
MCLEAN233 033 63-16-75 39-54 N 270 070.4 0675 0675 55 10	0675 0600 04 PT CLSY 010 10240 052	150 4420 37 -227
PCLEAN233 033 03-16-75 39-54 N 270 070-3 0675 0675 0675 060-25 10	0675 0600 04 PT CLEY 010 10240 052	155 11464 3656 24 2427 -350
46LEAN233 054 63-16-75 34-54 N 210 010.6 0675 0675 0675 011 13 1400 05-37 N 17.1 06 25 10	3675 0000 040 17 0.37	153 3562 6500 -379
LEAV-233 034 03-10-75 39-54 1 00-37 4 10 010.6 0675 0675 10	0675 0600 04 PT CLCY 010 10251 052	22 2556 22 150024
ICLEAN233 034 03-16-75 34-54 N 270 070.0 0675 0675 0675 0675 618 15 1500 060-37 N 17.1 06 25 10	C675 0606 64 PT 5LOY	3570 21 2226 -37,
MCLEAN 233 034 03-16-75 39-54 N 270 070-6 0675 0575 515 518 518 16 06-57 H 11.1 06 25 10	0.75 C6.0C 54. FT CL.DY 010 10251 652	154 3373 1367 -402
SEARS 51 4 17 53-16-75 29-54 1. 000-37 1. 17.6 05 20 10	3675 John 10269 045 CL3Y	0731 5 END MANUAL RECURD 3009 561 -305
MCLEAN233 035 03-16-75 39-54 N 270 072.5 0675 0675 0675 0675 0675 0675 0675 067	3075 363C 66 PT CLLY 315 10260 043	197 5403 3165 17 END MANDAL RECORD

SEA LAND MCLEAN 1975 SCASUN SUMMAFY TAPE LVAS MIDSHIP TRANSDUCER PAGE 548 SEA LAND MCLEAN 1975 SEASON SUMMARY TAPE LVBS HIUSHIP TRANSDUCER PAGE 54A

905 -201 END MANUAL RECORD STRESS -216 -180 -161--201 -180 -23 -104 -253 BURSTS COMMENTS -261 CYCLES SIRESS SIRESS CYCLES PSI PSI --- NAVE IND-- 1ST ACDE 0 0 0 0 0 0 0 1362 P-10-T NC4363 STRESS OF 2630 01 0 2028 1864 1411 950 1040 700 609 1426 1107 1332 1708 2230 1243 2347 3841 140+ 5059 2527 2003 1539 1240 2 77 7 2044 10+0 1903 133 145 116 105 MEATHER 3 0300 60 PT CLOY 002 10220 053 10220 053 300 45 CT CLOY 10219 044 0 06 PT CLDY 367S 0600 48 PT CLOY 00 48 PT CLOY 10246 049 10220 053 0678 0300 50 PT CLOY 3675 0630 66 PT CLOY 0675 0660 48 PT CLOY PT CLBY ShELL SAROM AIR
HT INCH TEMP
FEET HS 10-19 044 0505 0200 46 PT REL SAELL SAELL LONGTH SEA DIR FEET TEMP 10419 0675 0630 5 0300 001 10 010 010 3675 080C 302 10 0505 3500 0300 500 0300 0678 0900 0090 3675 0300 0908 3908 900 5060 0600 LONGITUDE SHIPS SEA RCL MAVEWAVE SPEED STATE WIND HT LENG-KIS SPEED FEET FT MEL REL NAVE WIND WAVE PO MCLEAN 23 037 03-17-75 33-54 N 270 071.0 0575 0675 0675 61 61 61 27 0570 0430 060-37 W 17.2 05 10 02 #CLEAN233 637 03-17-75 39-54 \ 550-37 # 17.2 03 10 02 505-57 , 17.5 012.0 0935 0935 050-57 , 17.5 01 05 01 050-37 × 17.5 01 05 01 082-57 272 072-0 0505 0135 270 372.0 0935 0905 060-17 W 17.5 01 05 01 0.00.0 0.45 0345 0.1 90 HCLEAN233 036 03-16-75 39-54 N 270 074-1 0675 0675 0675 011. 24 0.2 90 3. 270 074.1 0675 0675 060-37 # 18.0 04 15 0. N 270 072.5 0675 0675 060-37 N 17.6 05 20 L #CLEAN233 037 03-17-15 39-54 N 270 071.0 0575 0675 0675 0675 #C_E\$\$233 037 03-17-75 33-54 N 270 071.0 0675 3675 5 050-37 H 17.2 03 10 0 0 31 0 074-1 0675 0575 MCLEAN233 336 33-16-75 39-54 N 270 074:1 3675 0675 618 518 21 2430 MCLEAN233 035 C3-16-75 39-54 N 270 072.5 0675 0675 5 618 19 20 20 1 SHIPS PROP LATITUDE COURSE RPM MCLEAN233 030 03-10-70 39-54 N MCLEAN233 036 03-16-75 39-54 N 50-3 PCLEANZ33 039 03-17-75 37-54 50 04-17-75 FCLEAN233 0.9 03-17-75 39-24 0. 39-54 N 0800 401EAN233 038 03-17-75 39-54 N 2300 39-54 N #CLEAN233 0.58 03-17-75 39-54 : 0.000 51# 31 FLEENY253 058 03-17-15 59-54 7 ACLEAN233 038 03-17-75 51H 30 08 HCLEAN233 035 03-16-75 DATE TRIP INTERVAL ANALCS LCGBOOK TAPE INDEX NCX NUMBER

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ANALCG LCGGOCK TAPE INDEX NUMBER NUM DATE	LATITUDE	SHIPS PROP	REL REL DP WIND WAVE PM DIR DIR	EL WAVE	SHEL SWELL SWELL LENGTH SE- DIR FEET TE	SEA TEMP WEATHER	P-TO-T MUNBER STRESS OF PSI BURSTS COMMENTS
TRIP INTERVAL	7145 6MT	LONGITUDE SHIPS SPEED KTS	SEA REL STATE WIND SPEED KNOTS	MAVEMAVE HT LENG FEET FT	SAELL BAHOM AIR HT INCH TEMP FEET HG	AIR TEMP	NUMBER RMS MAX NEAN CYCLES STRESS STRESS STRESS STRESS
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APPENDIX B

PARAMETRIC STUDIES

This appendix contains the plots and tabulated summaries resulting from the parametric studies program "SPLOT." Each plot presents either a five-curve family of various ship speeds or a five-curve family of relative wave direction groups for a transducer output vs. Beaufort Number. Within each Beaufort Number the magnitude of a particular point is determined by calculating the mean of the data set or the mean of the one-third highest values within the data set. A superscribed note on each plot designates which value is applicable. The key on each plot also indicates which type (Ship Speed or Relative Wave Direction) is presented.

The measured data set is composed of the maximum wave-induced peak-to-trough value within each 30-minute data interval, or the RMS value determined for that interval. The graph title notes which characterization is applicable.

In addition to the Third Season Longitudinal Vertical Bending (LBV) signal, some parametric studies were run using data compiled from all three data acquisition seasons.

Each tabulated summary presents a listing of all plotted points along with the number of data points along with the number of data points comprising each plotted mean point and its standard deviation.

Table B provides an index for all parametric plots and summaries.

	· · · · · · · · · · · · · · · · · · ·
SYMBOL	SHIP SPD, Kts
0	0-15
Δ	16-20
+	21-25
×	.26-30
\Diamond	31-35

SYMBOL	REL SEA DIR.						
0	0-30						
Δ	31-60						
+	61-120						
×	121-150						
\Diamond	151-180						

TABLE B

Index of Results of Digitized wave-Induced Longitudinal Vertical Bending Stress Parametric Studies

	Dot Plots	All Points	23	24		1	
	r * y of	1/3 All Highest Points	ХІ	X11		•	
on Data	Tabular * Summary of	Mean or RMS	IX	×		-	
Three Season Data	: 6d	1/3 Highest	21	22	-	1	
Thr	by lculatir	RMS RMS 20		20		-	
	Plots by Calcu	Mean	17	18	1	ı	
	Dot Plots	All Points	7	8	15	16	
	Tabular * Summary of	1/3 Highest	111	ΙV	VII	IIIN	
on Data	Tabular * Summary o	Mean or RMS	I	11	>	١٨	
Third Season Data	ting:	1/3 Highest	2	9	13	14	
T _F	by lculatin	RMS	m	4	11	12	
	Plots by Calculat	Mean	-	2	6	10	
Sorted			Ship's Speed	Relative Wave Direction	Ship's Speed	Relative Wave Direction	
Value	from Each	Interval		Hax.	SN C	S. S	

*Includes number of points constituting each average and standard deviation of each mean.

TABLE B-I

1	SHIP BPEED BETHEEN	0.0 AND 15.0		L OCTAGE	CNAL	
i i	BEAUFORT	NO. OF DATA	MEAN	P=8	ST. DEVIATION	
• :		,	951.	955.	••.	
	3	50	1271.	1331.	305. 536.	
•	4	0	*****	,,,,,	.,	
. 1	5	0				
•	7	0				
. '	•	0				
,	10	0				
•	15	0				
,	SHIP SPEED HETHERY	15.0 A'D 20.0	PLOT 54-80	L TRIAL	SLE	
	BEAUFORT	NO. OF DATA	MEAN	R~5	ST. DEVIATION	
	1	24	4774.	4724.	1736.	
•	;	67	5181.	5437.	1435.	
	4	56	5660.	5651.	1481.	
•	5	56	4657. 7320.	7066.	2209.	
	7	50	10792.	11291.	3320.	
>	:	4	19020.	19046.	1002.	
	10	0				
•	11	0				
•	SHIP SPEED BET-EFN		PLOT 34480			
•	BEAUFORT	POINTS	MEAN	RMS	ST. DEVIATION	
•	1	24	4787.	5716.	1144.	
	· ;	29	6111.	6598.	2486.	
•		24	3767. 5870.	6169.	2270.	
•	6	24	5545.	6200.	2918.	
•	7	15	7957,	3566.	3225.	
	:		6057,	6400.	2068.	
•	10	0				
•	11	•				
	SHIP SPEED BET-EEN		PLOT 34-80			
•	BEAUFORT	PRINTS	-EAL	5 . 5	ST. DEVIATION	
•:	1	24	3243.	3200.	327.	
•	5	12	5149.	5901.	2483.	
•	5	15	7530.	5749.	1988.	
		52	5704.	5072.	1767.	
•	:	16	7074.	7663.	3-51.	
	•		13735.	13865.	1 494.	
•	10	•				
•	11	0				
•	SHIP SPEED BETHEEN		PLO7 37480	-		
•	PEAUFORT	NO. OF DATA	PEAN	4-5	ST. CEVIATION	
-	1	0	4681.	4969.	1000.	
•	•		3493.	3027.	514.	
_	;	32	3913.	4087.	1181.	
•	•	56	6352.	6756.	2300.	
49	;	43	7565.	6250.	1326,	
•	•	0		04.70	1,34.04	
_	10	0				
• ,	17	Ó				

			140				
HEALIFORT NUMBER	POINTS	•	- 7 A N		8*8	87. DE	VIATIO
1	16	,	5551,		5575.		665.
;	12		999		3461.		1827.
:			5151		7072.		804.
•	12		693	0.054	7214.		2741.
	36		1131		5831.		2770.
,	43		736		10012.		2335.
•		7	7865		8081.		1859.
•	•	15	55A4.		15775.		2447.
10	•						
11	•						
PELATIVE PAVE DIRE	CTION RETREEN	31.0	140	61.0	PLOT	54#50L	TPIAN
HEAMENHT			-E		a=5	51. DE	VIATIO
NUMBER	POINTS		• • • •				
1	10		3009, 6750,		3045.		1847.
,	16		5210		5605.		2068.
,	12	1	3218		3426.		2070.
Š	15	4	4737.		5911.		3536.
	50	1	7556		7642.		1145.
,	50		4653		5799.		3461 .
			4849		4930.		A90.
•	0						
10							
11	0						
DELATIVE -AVE DIPE	CTION AFTHEEN	61.0	40 1	21.0	PLCT	SYMADL	PLUS
BEAUFORT	NO. OF DATA		-644			57, 00	PITATE
NIMAER	PUINTS						
1	14		3441	•	3889.		263A.
í	24		3247	•	3670.		2106.
i	40		4914		5129.		1471.
5	29		3863		4430.		2164.
. 6	32		6308		7004.		3045.
7	24	1	1792		8985.		4474.
•	50	•	9243		10527.		5037.
•	0						
10	0						
11	•						
PELATIVE -AVE DIRE	CTION RETREEN	121.0	450	151.0	PLCT	SYMHOL	×
HFA F F	40. NF 0474		F 4 4		R=5	57. ne	V14710
1	0						
,	11		4746		5225.		7187.
í	. 33	4	4415		4050.		2171.
4	24	•			.007.		1380.
•	50		1000		5077.		2146.
•	34		0055		e50e.		2300.
	54		7741	•	7871.		1313.
	•						
10	° °						
11	ć						
13							
RELATIVE MAVE DIRE	CTION METHER	151.0	440	140.0	PLOT	-	01440
RFAHFORT	NO. OF DATA		"		***	57. P	V14110
1	.0						
	35		5025		4714.		1939.
1	35		3457		5791.		1464.
•	31				4516.		***
	16		5564				1402.
7			.561		6903.		1720.
	0						
•	. 0						
10	. 0						
•	. 0						

TABL	-	D	Y	*	7
IAKI		H -	-1	- 1	

9=	10	BPEED BETHEEN HEAUFORT NUMBER	0.0 AND NO OF DATA POINTS	15.0	PLOT SYP	ST. DEVIATION
		1 2 3 4 5 6 7 7 9 10 11 12	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		1643.	183.
•	! P	SPEED RETHEEN SEAUFORT NUMBER	15.0 AND NO OF DATA POINTS	20.0	PLOT SYM	ST. SEVIATION
		1 2 3 4 5 6 7 8 9 10 11	8 14 22 18 19 9 6 1		6043. 6348. 7657. 7314. 6808. 10267. 15099. 19696. 18403.	265, 455, 569, 909, 663, 1603, 1781, 0,
5-	I.P	SPEED BETHEEN BEAUFORT NUMBER	20.0 AND NO OF DATA POINTS	25.0	PLOT SYM	ST. DEVIATION
•		1 3 4 5 6 7 8 9 10	2 8 9 2 6 8 8 4 2 0 0 0 0 0 0		7887. 6311. 624C. 6505. 7593. 6478. 10976. 8348.	493, 686, 791, 320, 423, 703, 866,
5-	7.0	SPEED BETWEEN BEAUFORT NIMAFR	25:0 440 NO DE DATA POINTS	30.0	PLOT SY	ST. DEVIATION
		1 2 3 4 5 6 7 7 6 6 10 11 12	2 A A A A A A A A A A A A A A A A A A A		3094, 4698, 7986, 7986, 12116, 7674, 10757, 9139, 16220,	230. 1462. 1460. 710. 906. 1221. 2256. 494.
,.	10	SPEFD BETWEEN BEAUFORT NUMBER	30.0 450 NO OF DATA POINTS		PLOT SY	ST. DEVIATION
		1 2 3 4 5 6 7 7 8	1 1 2 0 1 1 1 2 0 0		6692. 4727. 7454. 5503. 8792. 9994. 7894.	1109. 0. 2302. 230. 050. 1107. 1508.

PELATIVE MAVE DIS	RECTION METHER	0.0 AND 31	O PLOT SYMBOL	DETAGONAL	TABLE B-
ME ALIFORT	NO OF DATA	MEAN	ST, DEVIATION		
;	:	4757.	218.		
3	,	6116.	151.		
	:	10061.	1511.		
	12	#36C.	1143,		
7	14	12578.	1039.		
•	ź	14351.	52.		
10	0				
11	0				
RELATIVE MAVE DI	NO DE DATA	ME AN 61	ST. DEVIATION	THIANGLE	
NIMRE P	POINTS				
;	2	3675. 8577.	169.		
3	5	7572.	215,		
4	4	9378.	669.		
		AA53.	1442.		
,	. 6	9200.	1049.		
:	5	5954.	342.		
10	0				
11	0				
15	•				
PELATIVE MAVE DI	RECTION RETHER	61.0 AND 121	.0 PLOT SYMBOL	PLUS	
NIMAER	POINTS		31. 02111104		
1	14	7267.	698.		
;		5763.	732.		
•	13	6634.	951.		
	10	6073.	1619.		
i		12947.	3449.		
•	•	15563.	4959.		
10	0				
11	•				
17	0				
BEAUFORT	RECTION RETWEEN	121.0 AND 151	ST. DEVIATION	×	
HIMMER	POINTS				
1	;				
(11	6857.	552.		
4		7520.	887.		•
:	12	7214.	653.		
,		9247.	449,		
	0				
10	2				
11	:				
RELATIVE HAVE DI	NO OF DATA	151.0 AND 180	ST. DEVIATION	DIAHOND	
HIMAFR	POINTS				
;	10	6386.	1497.		
	10	7496.	*06. 610.		
	11	7460.	551.		
•	17	6570.	nne.		
	ċ	A714.	24.		
•	•				
. !!	°				
	, a				

8m1P (OPEFO AFTHEEN	0.0 AND 15.0	PLOT \$7 80L	OCTAG	ONAL
	BEAUFORT	NO OF DATA	PEAN	R=8	ST. DEVIATION
	. 1	,	479.	481.	40.
	2	4	610.	644.	207.
	:	50	1540.	1500.	245.
	;	ò			
	•	•			
	7	0			
	•	0			
	10	0			
	12	0			
5+1P	SPEED BETAFEN	15.0 AND 20.0	PLOT 34-90L	TRIAN	GLF
	BEAUFORT	NO. OF DATA	-F 44	p=3	ST. DEVIATION
	,	24	2100.	2267.	*31.
	5	45	2217.	2312.	655.
	3	67	7466.	2591.	796.
	5	54 58	2619.	2425.	1039.
	4	2*	5254.	3453.	1155.
	7	50	7945.	4732.	1314.
		4	6972.	7036.	458.
	10	0			
	11	0			
5+1P	SPEED BETHEEN	20.0 AND 25.0	PLOT SYMBOL	PLUS	
	HEALIFORT NUMBER	NO. OF DATA	MEAN	RMS	ST. DEVIATION
	1		2651.	2667.	293,
	5	24	2181.	2582.	1381.
	3	?A	2915.	3164.	1228.
	5	24	2800.	3044.	924.
	•	24	2651.	2974.	1346.
	7	12	3206.	3422.	1198.
	;	0		50176	
	10	0			
	11	Ĉ			
5410	SPEFD AFT-EEN	25.0 AND 10.0	PLOT 54-60L		
	BFAHFOHT	NO. OF DATA	HEAN	***	ST, DEVIATION
	1		1520.	1527.	140.
	;	24	1192.	1381.	1154.
	4	24	2524.	2715.	
	•	15	2855.	3306.	1667.
	•	52	2535.	3119.	1251.
		16	3120.	3161.	574.
	•		5504.	5541.	610.
	12	0			
	11	ĉ			
941P	SPEED BFT-EFN	30.0 440 35.0		0144	040
	REAUFORT NUMBER	NO OF DATA	MEAN	**8	ST. DEVIATION
	1	20	1909.	1975.	404.
	,	4	1772.	1723.	40.
	4	12	1992.	2100.	A7A.
	1	14	1667. 2745.	2017.	947
	;	41	1114.	3474.	1001.
	:	:	2454.	2470.	533.
	10	;			
	11	0			
	12	0			

TABLE B-V

RELATIVE WAY	P 019FCTION	******	0.0	AND	31.0	PLOT	-	OCTAGONA
BEAUF		OF DATA		MEAN		848	87, 06	MOTATION
	1	14		2669		2680.		247.
	,	15		1279		1479.		742.
	3			5396	•	2461.		559.
	4	15		5050	•	2771.		873.
	6	10		2311	•	2734.		1469.
	;	43		3910	•	3984.		1091.
	A	*		3262	•	3341.		721
	•			623A	•	6334.		1047.
1	0	0		171 m 71271	•			
	1	0						
	,	0						
HELATIVE WAV			31.0	AND	41.7	PLOT	SAMHUE	TPIANGLE
HF AIJF NIIM		MF DATA		of ac		0-5	51, 51	VIATION
	1	A		1456		1454.		231.
	5	16		2835		2954.		A41.
	3	16		2574		2427.		1162.
	4	12		1511		1865.		1095.
	5	15		1872		2249.		1246.
	7	50		3263	•	3294.		1478.
	•	-		2095	•	2111.		261.
	•	0			•			201.
1	0	ō						
1	1	0						
1	,	0						
PELATIVE HAV	E DIRECTION	RETHEEN	61.0	AND	121.0	PLOT	SYMADL	PLUS
BFAIIF		OF DATA		"FAN		2 = 5	57, 06	MULLATA
	1	10		1800		2066.		1014.
	?	44		1523		1703.		761.
	3	40		1461		1765.		991.
	5	29		1845	•	5150.		612.
	6	32		2740	•	2980.		1173.
	7	24		3245		3721.		1748.
		20		4006	•	4486.		2020.
	•	•						
	.0	0						
	2	0						
DELATIVE WAY	F DIRECTION	AFTWFE .	121.0	AND	151.0	PLOT	\$4-80L	
HEATIF		OF DATA		we a .		0~9		VIATION
None		P01"75						
	,	11		1555		2452.		1039.
	•	31		2016	-	2194.		A75.
	4	24		SALZ		2452.		421
	4	. 50		2105		2313.		959.
	6	36		2766		2060.		1078.
	7	74		3657	•	Seek.		e11.
	•	•						
	•	•						
	1	0						
	,	•						
-	e DIMECTION	HETHEN	151.0	440	180.0	PLOT	344901	******
RFAIIF	NRT 40.	OF DATA		-6 44			37. 0	VIATION
	1	•						
	,	57		2025	•	. 9025		ATE.
	1	50		2746	•	2424		650.
	•	35		2571	•	2720.		478.
	:	34		3143	•	3110.		600.
	;	3,6		8448		2074.		787.
	•	•			•			
	•	•						
. 1	^	•						
1	1	0						

TABLE B-VI

c

TABLE B-VII

	9+1P	SPEED BETHEEN	0.0 440	15.0		BOL OCTAGONAL
•		REALIFORT NUMBER	POINTS		ME AN	ST. DEVIATION
		1	•			
•		3	:		1012.	71:
		5	0			
		4	0			
		7	0			
		.:	. 0			
•		12	0			
		12	•			
•	-	SPEED HETHEEN	15.0 AND	20.0	PLOT SY	BOL THIANGLE
	a-1-	BEAUFORT	AN OF DATA		MEAN	ST. DEVIATION
•		NUMBER	POINTS			
		1	14		2866.	147.
		,	55		3146.	217.
•		5	10		3134.	356.
-		6 7			4354.	537. 833.
•		1	1		8506.	0.
-		10	1 0		8380.	0;
•		11	0			
_		• •	·			
•	SHIP	SPEED BETHEEN		25.0	PLOT SY	
		BEAUFORT	NO OF DATA		MEAN	ST. DEVIATION
			3333			
		į	?		3020.	95. 156.
		3	,		3944.	211.
		5			1673.	178.
2.40		;			4367.	383. 303.
•		:	5		3702.	64,
		10	0			
•		15	0			
	SHIP	SPEED HETHEEN	NO OF DATA	30.0	PLOT ST	ST. DEVIATION
•		NUMBER	POINTS			
		1	2		1713.	4.
•					3050	550. 219.
					1860.	261.
•		:	17		1299.	164.
		7	14		3037.	576. 201.
•		•	1		. 8950	0.
•		10				
		12	0			
•		SPEED RETHEEN	14'4 444		PLOT 37	BOL DIAMOND
	3414	BEAUFORT	NO OF DATA		MEAN	ST. DEVIATION
•		NUMBER	PRINTS			
		;	:		2551.	172.
•		3	1		1798.	0.
			10		2270.	70.
1		;	10		3767.	201.
•					2701.	240,
		10	0			
•		11	0			
-		17				

HMS MAYF-INDUCED MID YERT, RENDING STRESS VS STAUFORT NO, -MCLEAN THIRD SEASON FOR HIGHEST 1/3 VALUES

•					
	BELATIVE HAVE DIRECTION BETHEEN		11.0 PLOT SYMBOL	OC TAGONAL	TABLE B WYYY
	BEAUERRY NO OF DATA	MEAN	ST. DEVIATION		TABLE B-VIII
•	NUMBER POINTS				
		2959.	105,		
•	1	1971			
•	;	3111.	37		
	1 1	3922			
)	5 4	4454.	224.		
•	5 12	3440.			
	7 14	4627.			
•	4 ,	4071.	111,		
	• 2	7855.			
	10 0		•		
•	11 0				
	12 0				
•					
	PELATIVE MAVE DIRECTION RETAFEN			THIANGLE	
	BEA FORT NO OF DATA	mt w	ST. OF VIATION		
•	NIMAER POINTS				
	1	1713.			
)	? 5	3733. 3904.	155.		
		3017.	214.		
•	5 4	3525.			
•	,	3804.	229		
	7 6	3984	510.		
		2364.			
•	9 . 0				
	10 0				
•	11 0				
	12 0				
)					
	RELATIVE MAVE DIRECTION RETHER			PLUS	
	BEAUFORT NO OF DATA	MEAN	ST. DEVIATION		
•	NUMBER POINTS				
74.754		2906.	1.04		
	1 4	2505.			
•	\$ A	2705.			
	4 13	2912.	333		
	, ,	2872.	134.		
	6 10	4000.			
	,	5221.	1460.		
•	4 6	6531.			
3	9 0.				
	10				
•	11 0				
	12 0				
•					
	HELATIVE WAVE DIRECTION RETREEN	151'0 THE I		¥	
	BEATERRY NO OF DATA	MEAN	ST. DEVIATION		
•	WINNER DUINTS				
	,				
•	}	3149.	10.		
•	i ii	3020	806.		
1		3461.			
•	•	3167.	114		
	6 12	1000.	557.		
	7	4276.	270.		
	• •				
_	10 0				
•	11 0				
	12 .				
•	RELATIVE MANE PIRECTION METHERS		BO.C PLOT STUBOL	0144040	
	BEAUFORT WO OF DATA	151.0 AND 1	ST. DEVIATION	014-0-0	
	NIMBER POINTS	-6.44	G CE TREE LINE		
•	divers bulgis				
	, 10	soce.	461.		
	i ië	3506.	313.		
	. 10		924.		
	• 11	IAAO.	167.		
	6 17	3003.	310,		
	,	3790.	10.		
•					
	• 0				
	10 0				

-	SPEPD BFTWEEN	0.0 440	15.0	PLOT 3448	OL OCTAG	ONAL	
	BEAUFORT	NO. OF DAT	TA A7	MEAN	***	51.	CEVIATION
	. 1	,		951.	955.		
	2	4		1271.	1551.		395.
	•	41		3743.	4143.		1684.
	•	39		6658.	7090.		2171.
	6	50		5516.	5675.		1316.
	ï	44		11042.	11552.		3397.
	A	0					
	•	50		19873.	20116.		3122.
	10	59		19561.	19845.		3334.
	11	15		19857.	23109.		4793.
9+14	SPEED BETWEEN	15.0 440	20.0	PLOT SYMP	SOL TRIAN	GLF	
	SFAUEORT	40. NF DA	TA		p = 3	ST.	DEVIATION
	MIJMAFA	POINTS					
	1	24		4394.	4724.		1736.
	;	91		440A.	4817.		2732.
	4	60		5459.	5695.		1455.
	5	62		4524.	5030.		2198.
		32		6642.	7407.		3279.
	7	24		11715.	12313.		3786.
	A	15		13640.	14231.		4060.
	•	50		14773.	15048.		2863,
	10	24		14938.	15268.		2276.
	11	ò		14003	14041.		2270.
3+1P	SPEED BETWEEN	20:0 AND	25.0	PLOT SYM	ant Plus		
	BEAUFORT	NO OF DA		46 44	PMS	51,	DEVIATION
	1			6584.	6485.		1144.
	,	35		4349.	5184.		1585
	3	84		5763.	6246.		2408.
	4	167		4212.	4834.		2377.
	5	170		5603.	6060.		2725.
	•	129		7735.	8574.		3699.
	Á	96		11543.	12276.		4178.
		20		14254.	14502.		2675.
	10	17		17374.	17507.		2150.
	11	0					
9419	SPEFD RETHERN	25.0 AND	30.0	PLOT SYM	BCL X		
	REAUFORT	NO. OF DA		MEAN	RMS	57.	PEVIATIO
	WIIMRE R	PHINTS		200	7		
	1	12		4037.	4200.		.1440.
	:	4.6		2310.	2900.		1753.
	à	104		4503.	5402.		2943.
	Š	204		4611.	5537.		1000.
	6	113		5366.	5000.		2368.
	,	134		6136.	6914.		3186.
	•	47		A274.	9172.		4103.
	•	50		11405.	12467.		SAOA.
	10	5.		9872.	10377.		3200.
	12	•		141 11.	14525.		3361.
3419	SPEED HETSEN	30.0 AND	35.0	PL01 344			
	REALIFORT NUMBER	POINTS	74	MEAN	443	81,	OFVIATION
	;	255		3932.	4312.		2008.
	;	317		1647.	4500		2402
	4	101		1015.	4451.		2217.
	•	150		4326.	4871 .		2210.
	•	450		5141.	5A74.		2645.
	,	250		6170.	ATAT.		3067.
		134		A034.			1945.
	•	• ,		10815.	11446.		1745.
				10815. 9851. 7128.			1745. #242. 740.

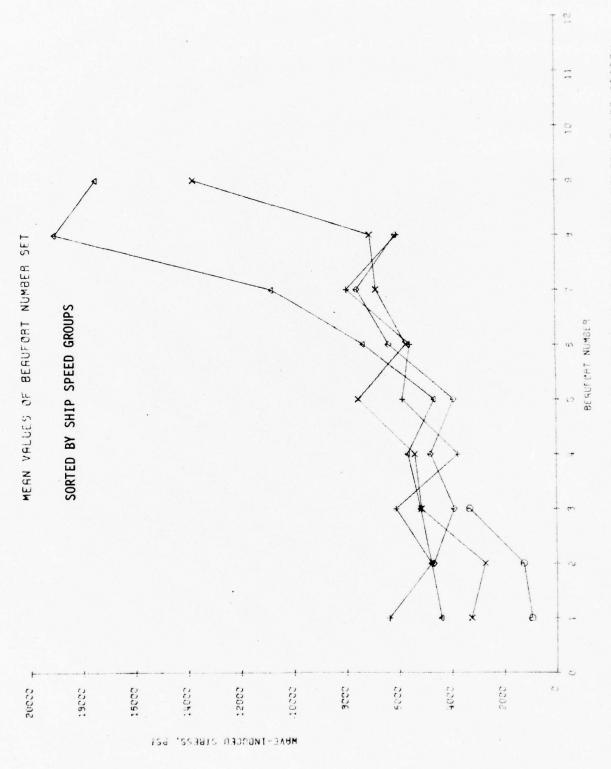
TABLE B-IX

	CTION BETHEEN	0.0 AND 31.0		SYMBOL OCTAGON
BFAUPORT	POINTS	MEAN	PHS	ST. DEVIATION
1	40	4991,	5259.	1652.
?	64	3327.	3926.	2084.
1	155	5241.	637A.	3635.
,	134	4106.	4920.	2711.
	145	5090.	5847.	2476
7	127	8878,	9749.	4027.
	36	. 8506	9480.	2894.
	"?	10064.	16646.	4361.
10	36	16514.	17401.	5486. 1654.
iż	15	27172.	27458.	3954.
PELATIVE WAVE DIRE	CTION RETHEEN	31.0 440 61.0	PLOT	SYMBOL TRIANGL
BEAUFORT	NO, OF DATA	MFAN	RM5	ST, DEVIATION
		3009.	3045.	462.
?	59	5159.	6039.	3171.
3	136	3328.	4102.	2398.
5	192	4258.	4980.	1755.
6	100	5673.	6403.	2969.
7	86	5566,	6606.	3556,
	6.6	9128.	10204.	4561.
10	48	10582.	11080.	5522.
11	16	11962.	12944.	4947.
12		16877.	17938.	6078.
RELATIVE WAVE DIRE	CTION RETHEEN	61.0 AND 121.0	PLOT	SYMBOL PLUS
BEAUFORT	NO. OF DATA	MEAN	RMS	ST, DEVIATION
	18	4066.	4703.	2362.
2	116	3443.	4197.	2401.
3	174	3846.	4433.	. 0055
4	305	3787.	4435.	5300.
5	319	4810.	5021.	2369.
6 7	167	7127	7925.	3465.
	95	7590.	8743.	4341,
•	52	11224,	11594.	2008.
10	25	9804.	10427.	1551,
11		14665,	14841.	2276.
RELATIVE WAVE DIRE	CTION BETWEEN	121.0 AND 151.0	PLOT	SYMBOL X
BEAUFORT	NO. OF DATA	MEAN		ST. DEVIATION
NUMBER	POINTS			
;	35	2017,	3471.	1481.
3	110	3426.	1050.	1005.
4	156	4623.	5274.	2540.
•	163	5141.	5626.	2741.
6 7	100	7500.	.5108	3314.
	115	10783.	11496.	1995.
•	2.6	10000.	11750.	4412.
	24	11621.	12514.	3470.
10		** . * *		3216.
10 11 17	î	23102. 2409A.	24182,	2004.
11	:	24098.	24182.	200€.
RELATIVE WAVE DIRE	ECTION RETHEEN	24098.	24182.	200€.
11 17 RELATIVE WAVE DIRI BEAUFORT HUMBER	ECTION BETHEEN	2409A. 151.0 AND 160.0	24162. PLOT RMS	SYMBOL DIAMON
II IP RELATIVE WAVE DIRI BEAUFORT NUMBER 1	ECTION RETHERN NO, OF DATA POINTS	2409A, 151.0 AND 160.1 MFAN 2947.	24182. PLOT RMS	POOP. SYMBOL DIAMON BT, DEVIATION 2051.
RPLATIVE WAVE DIRI BEAUFORT HUMBER	ECTION RETHERN NO. OF DATA POINTS 100 114	24098, 151.0 AND 180.0 MFAN 2947, 5180.	24182, PLOT RM8	POOP. SYMBOL DIAMON BT, DEVIATION 2051. 2101,
TELETIVE WAVE DIRI	ECTION RETHER NO. OF DATA POINTS 100 114	24098, 151.0 AND 180.0 MFAN 2947, 5180, 4898,	24182. PLOT RMS 3590. 5589.	SYMBOL DIAMON ST. DEVIATION 2041. 2101. 2101.
RPLATIVE WAVE DIRI BEAUFORT HUMBER	ECTION RETHERN NO. OF DATA POINTS 100 114	2409A, 151.0 AND 160.0 MFAN 2947, 51A0, 4090, 5730.	3500. 5580. 5380.	2051. 2051. 2051. 2051. 2051. 2101. 2200.
RELATIVE WAVE DIRI BEAUFORT NUMBER 1 2 1 5	ECTION RETHEN NO. OF DATA POINTS 100 114 106 145 117	24098, 151.0 AND 180.0 MFAN 2947, 5180, 4898, 5730, 4829, 5781,	3500. 5580. 5580. 6311. 5406.	204. SYMBOL DIAMON ST, DEVIATION 2051. 2101. 2221. 2221. 2750.
RELATIVE WAVE DIRI	ECTION RETREEN NO. OF DATA POINTS 100 114 106 143 117	24098, 151.0 AND 180.0 MFAN 2947, 5180, 4898, 5739, 4020,	24162, PLOT RMB 3590, 5580, 4380, 6311, 5406,	SYMBOL DIAMON ST, DEVIATION 2051. 2101. 2206. 2270. 2271.

TABLE B-X

SHTP	SPEPD RETWEEN SEAUFORT NUMBER	0.0 AND NO OF DATA POINTS	15.0	PLOT S	ST. DEVIATION
	1 2 3 4 5	0 1 13		1643 5704 7241	1456.
	;	14		7083	1344.
	12	0		23597	1A30. 3497.
	11	4		24573	2424.
9-12	SPEED RETWEEN HEAUFORT NUMBER	15.0 AND NO OF DATA POINTS	20.0	PLOT S	ST. DEVIATION
	1 2	15		6305	496.
	3	30		7700	617.
	5	50		6762	677.
	6	10		10111.	1591.
	7	4		16259	1810.
	•	6		18109	451.
	10	•		18350.	. 2242.
	11	0		17871	. 0,
SHIP	SPEED BETWEEN HEALIFIERT NUMBER	POINTS	25.0	PLOT S	ST. DEVIATION
	1	5		7887	491.
	3	10		8033 8340	831,
	4	55		6872	2196.
	5	50		3580	2303.
	7	43		12197	1160.
	. 8	32		16102	1589.
	•	•		17470.	1400.
	10 11 12	0		19469	306,
SHIP	SPEAN BETWEEN HEAVENRY NUMBER	25.0 AND NO OF DATA POINTS	30,0	PLOT :	ST. DEVIATION
	•	4		5623	, 515,
	,	16		6500	1151.
	4	66		A053	2173.
	5	6A 37		8307 8031	1737
	*	44		9601	1678.
		30		13196	. 2766.
	10	10		16550	1776.
	11	0			. 1404.
	12	1		19464	
3H1P	SPEED BETWEEN . REALIFORT NUMBER	NO OF DATA	35,0	PLOT :	ST. DEVIATION
	1	•		6563	
	;	105		6372	2185.
	,	127		CAFA	1908
	,	141		6929	. 1603.
	•	140		9720	1963,
	•	45		12173	. 2007.
	.:	30		14900	1565
	10	14		15182	1984.
	12	ò			

RELATIVE WAVE DIR REAUFORT NUMBER	FCTION BETHEEN NO OF DATA POINTS	0.0 AND 31.	ST. DEVIATION	OCTAGONAL		TABLE B-XII
1	13	6630.	700.			
3	35	5728. 6723.	1315.			
4	51	8451.	2156			
5	46	7256.	2035,			
6	47	6216.	1951.			
7	42	13444,	2847,			
Å	12	12254.	1383.			
10	12	20324.	2213,			
ii	i	21680.	0.			
15	4	31986.	2452,			
RELATIVE WAVE DIR	ECTION RETHEEN	31.0 AND 61.	O PLOT SYMBOL	TRIANGLE		
NIMAER	POINTS					
1	,	3675.	249.			
,	19	A592.	1991.			
3	45	6131.	2106.			
5	50	5036. 7174.	1346, 2315.			
,	36	6893.	2657			
7	28	9859.	2591.			
	55	14644.	2293,			
•	16	14146.	1630,			
10	10	18973,	1924.			
iż	Ş	20173.	2547.			
RELATIVE WAVE DIR BEAUFORT NUMBER	ECTION RETHEEN NO OF DATA POINTS	61.0 AND 121. MEAN	O PLOT SYMBOL ST. DEVIATION	PLUS		
1		6908.	.508			
5	38	6201.	5019.			
3	100	6357.	1714,			
5	106	7173.	1396.			
6	70	7996.	1593			
7	55	11184.	2177,			
	31	12451.	4083.			
10	17	14318.	1165.			
ii	1	17871.	0,			
12	ó					
RELATIVE WAVE DIR				x		
BEAUFORT	NO OF DATA	MEAN	ST. DEVIATION			
1	•					
,	11	5346.	1432,			
1	36 52	5371.	5055			
5	54	4294.	1549.			
. 6	. 54	A935.	2048.		•	
7	31	10958.	2627.			
	NA.	14977.	1612.			
•	•	15160.	1057.			
10	;	15271.	1250.			
iż	,	2000.	425.			
RELATIVE WAVE DIR REAUFORT NUMBER	PECTION RETREEN NO OF DATA POINTS	151.0 AND 180.	O PLOT SYMBOL	DIAMOND		
	0					
;	. 33	5297.	1485.			
1	SA	7492.	1175,			
•	35	7501.	1766,			•
:	4A 37	7399	1962.			
;	37	6727	2470.			
	*	14101.	2010,			
•	•	14629.	1046.			
10	•	20466,	1104.			
11	0					



MAX WAVE-INDUCED MID VERT. BENDING STRESS VS BEAUFORT NO.-MCLEAN THIRD SERSON Figure B-1.

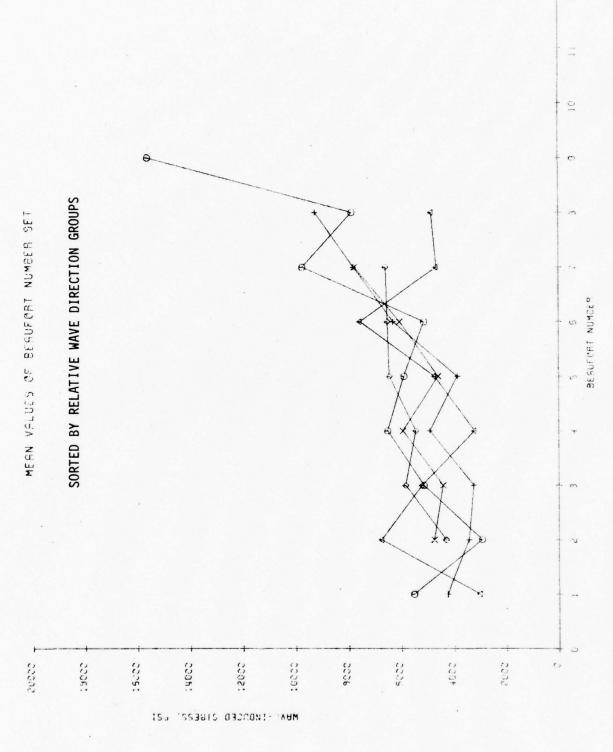
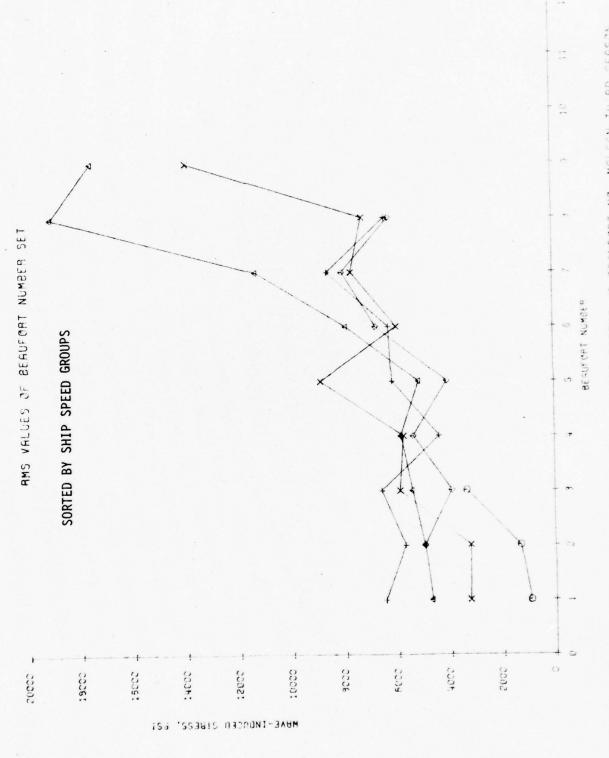


Figure B-2. MAX MAVE-INDUCED MID VERT, BENDING STRESS VS BERUFORT NO.-MCLERN THIPD SERSON



MAX MAYE-INDUCED MILL VERT, BENDING STRESS VS BERUFORT NO.-MCLESN THIRD SEASON Figure 8-3.

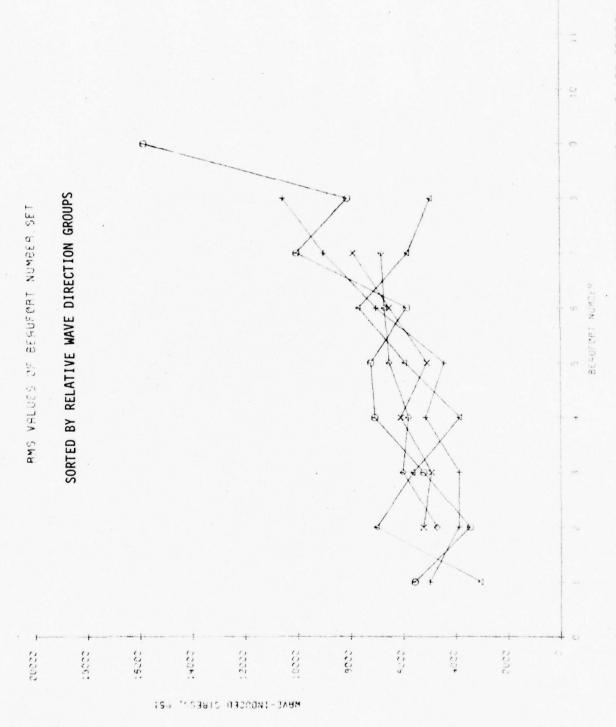


Figure B-4. MEX MEVE-INDUCED MIC JERT, BENDING SIMESS VS BERUFORT NO, -MCLERN THIRD SERSON

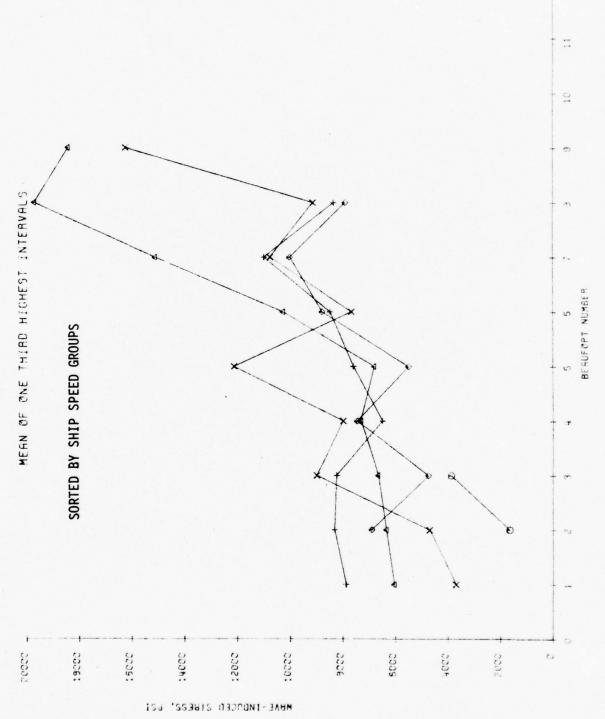


Figure B-5 MAX WAVE-INDUCED MID VERT. BENDING STRESS VS BEAUFORT NO. -MCLEAN THIRD SERSON

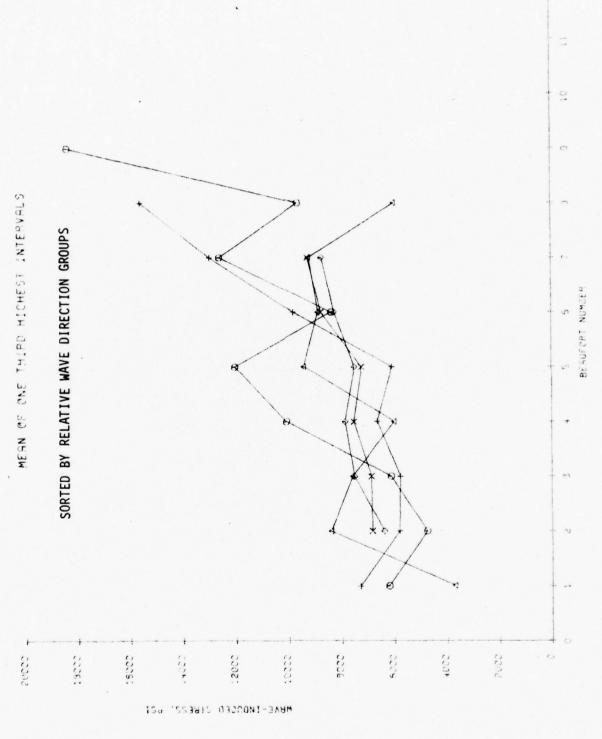
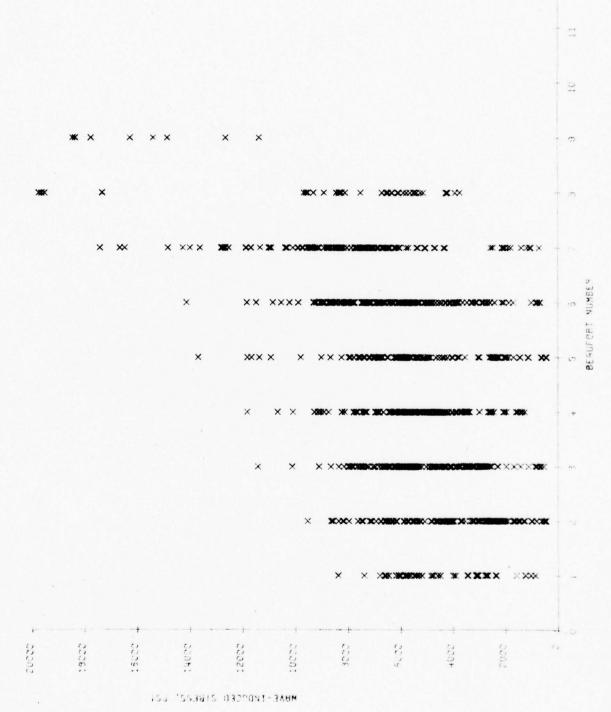


Figure B-6. MSY WAVE-INDUCED MID ZERT, BENDING STRESS VS BEGUTORT NO.-MCLEAN THIRD SERSON



MAX WAVE-INDUCED MID VERT, BENDING STRESS VS BEGUFORT NO.-MCLEAN THIRD SEASON Figure B-7.

MEVE-INDUCED STRESS, PS!

PENDING SIMESS VS BEGUFORT NO. - MCLEGN THIRD SERSON Figure B-8. MAX WAVE-INDUCED MID VERT.

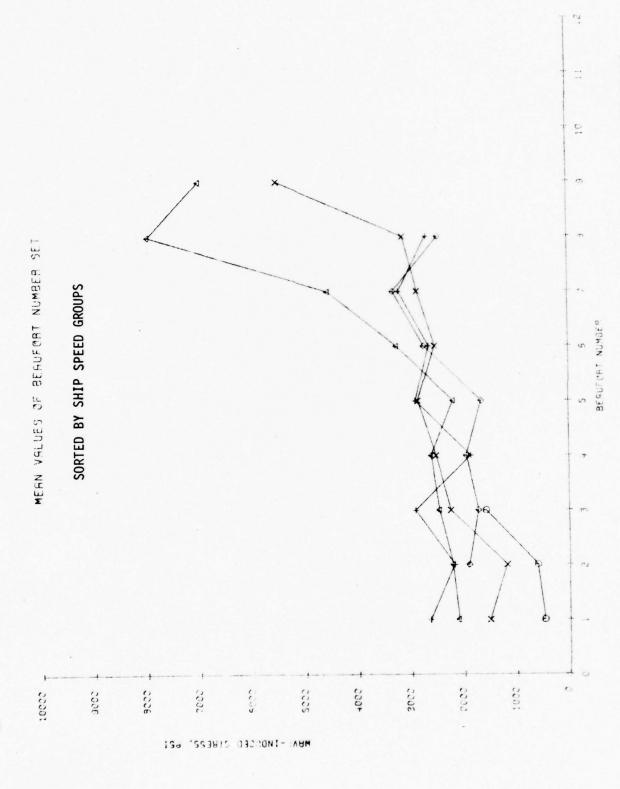


Figure B-9. AMS WAVE-INCUCED MID VERT, BENDING STRESS VS BERUFORT NO.-MCLEAN THIRD SERSON

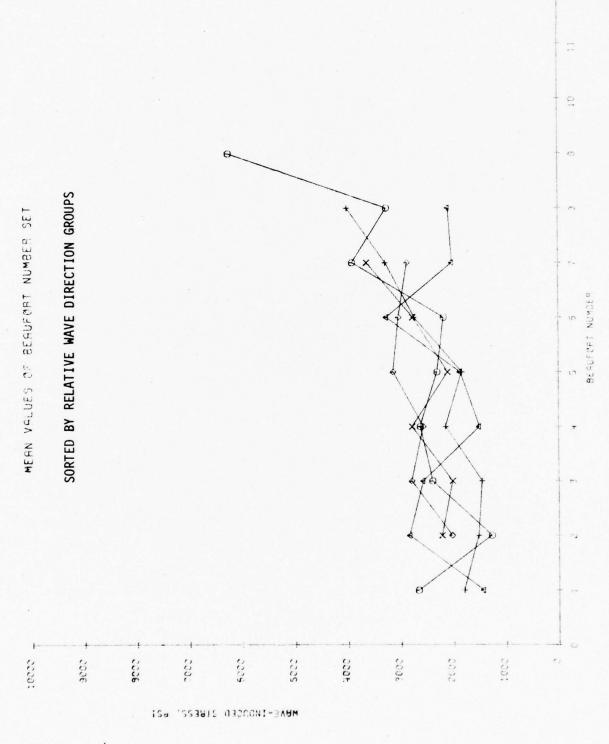


Figure B-10, AMS WAVE-INDUCED MID VERT, BENDING STRESS VS BERUFORT NO.-MCLERN THIRD SERSON

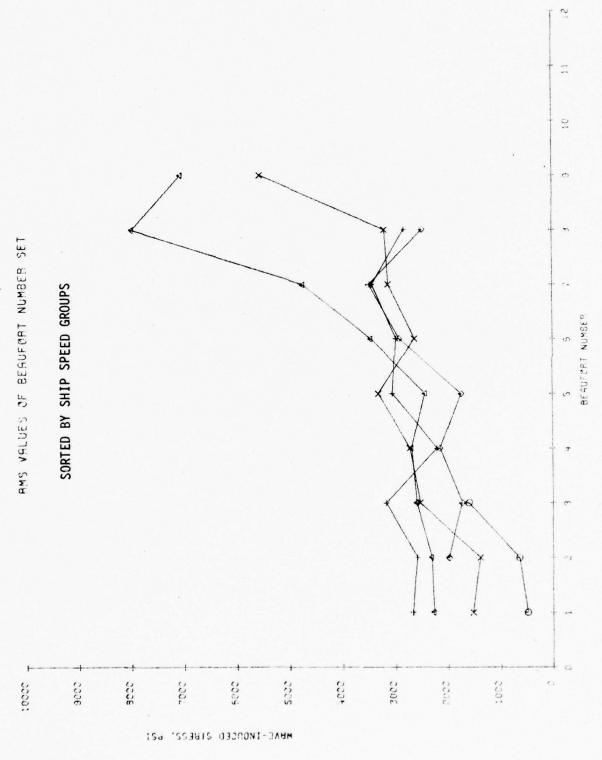


Figure B-11. 945 WAVE-INDUCED MID VERT, BENDING STRESS VS BEAUFORT NO.-MCLESN THIRD SERSON

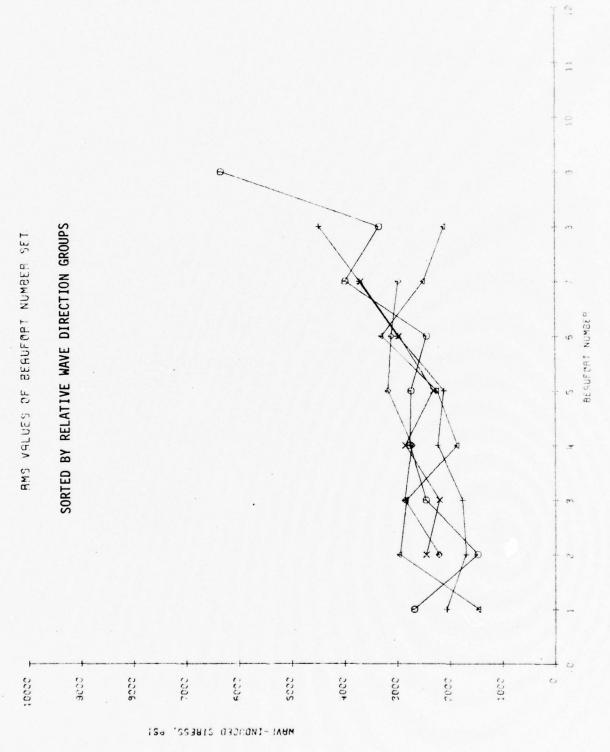
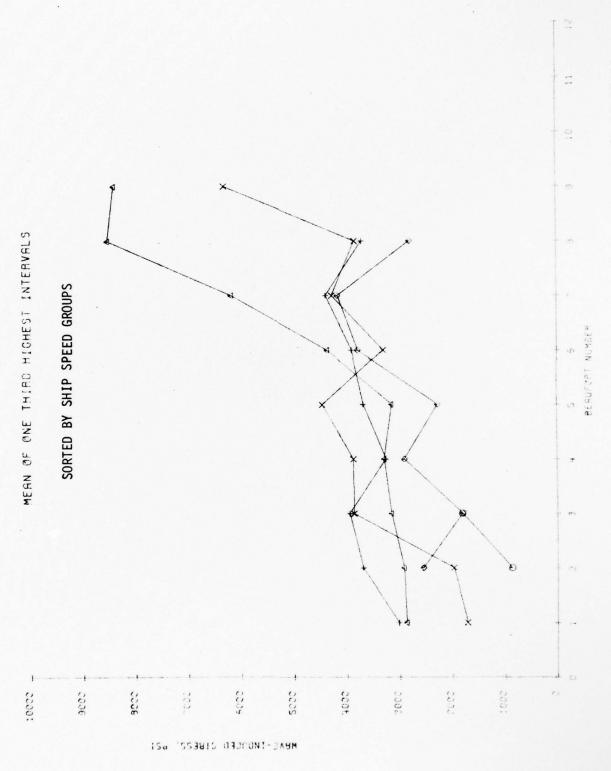


Figure B-12.9ms wave-induced mid veri. Bending stress vs berundri no, -mclean third season



MMS WAVE-INDUCED MID VEBT. BENDING STRESS VS BERUFORT NO.-MCLERN THIRD SERSON Figure B-13.

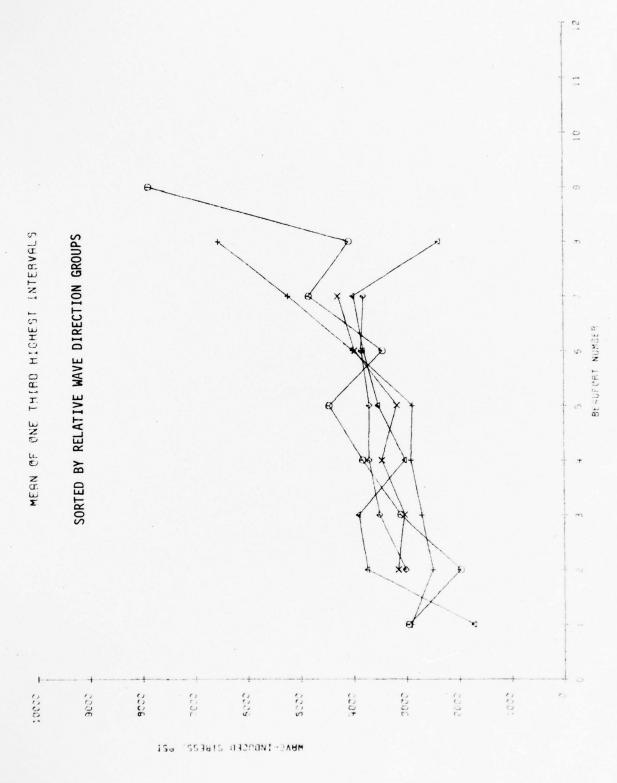
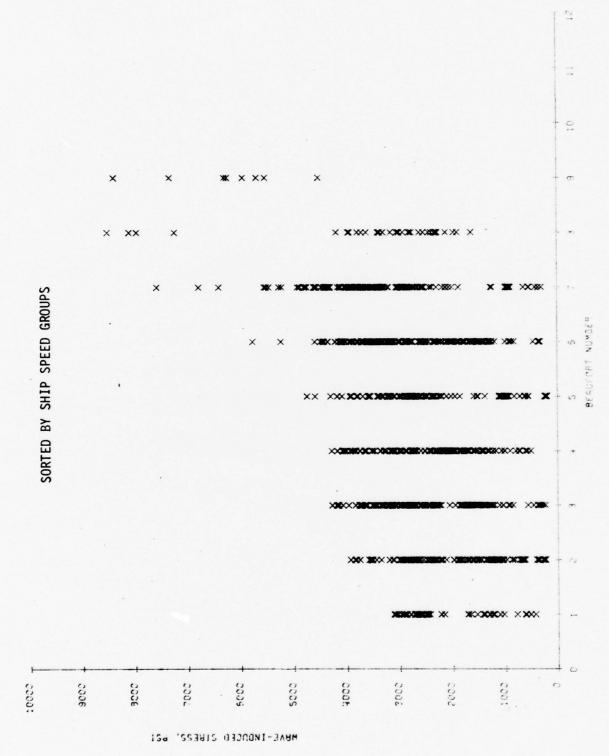


Figure B-14. AMS WAVE-INDUCEU MID VERT, BENDING SIRESS VS BEAUFORT NO.-MCLEAN THIRD SERSON



BENDING STRESS VS BEAUFORT NO. - MCLERN THIRD SESSEN AMS MAVE-INDUCED MID VERT. Figure B-15.

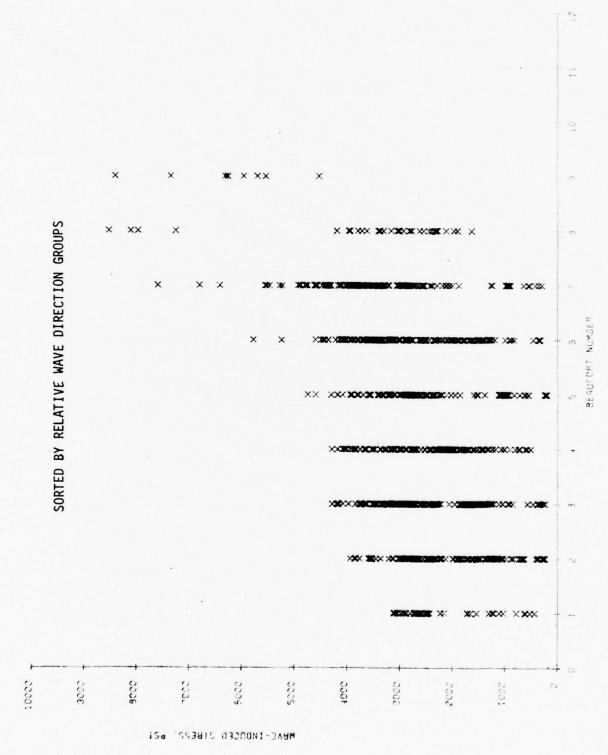
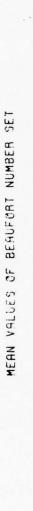
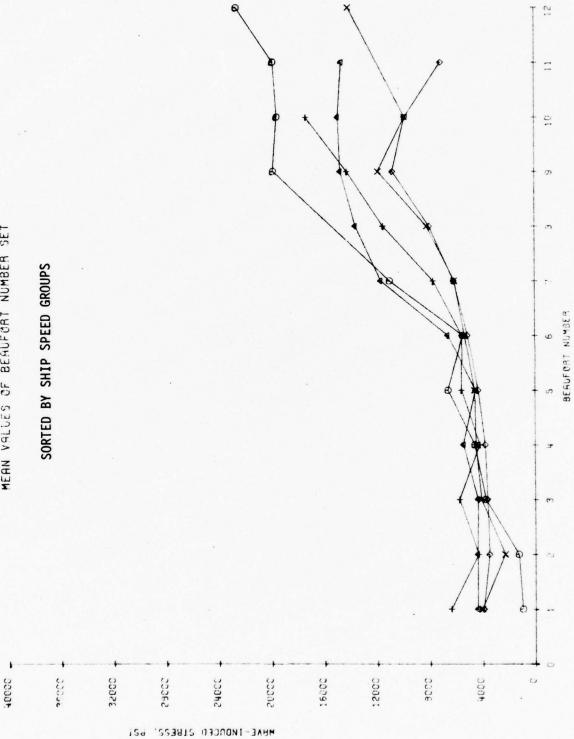


Figure B-16. RMS MGVE-INDUCED MID VERT, BENDING STRESS VS BERUFORT NO.-MCLERN THIRD SERSON





MAX WAVE-INDUCED MID VERT. BENDING STRESS VS BEAUFORT NO.-MCLEAN THREE SEASONS Figure B-17.

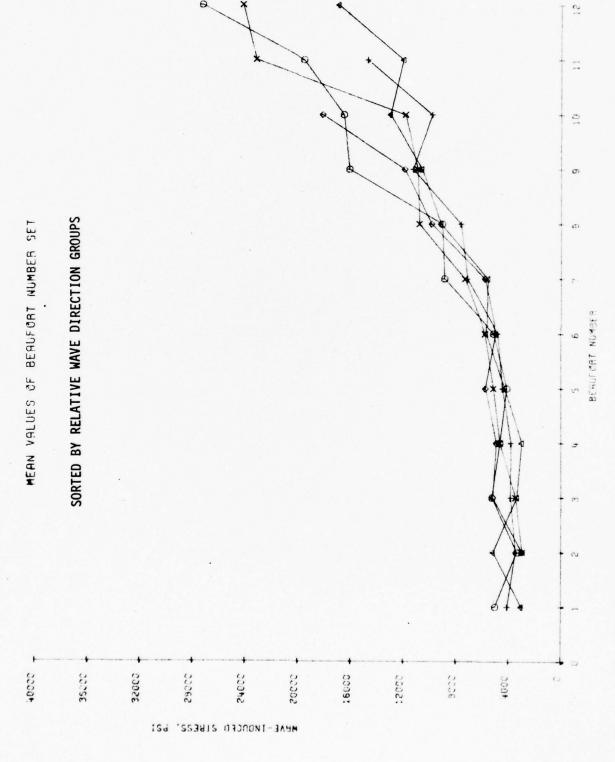


Figure 8-18. MAX WAVE-INDUCED MID VERT. BENDING STRESS VS BEAUFORT NO.-MCLEAN THREE SEASONS

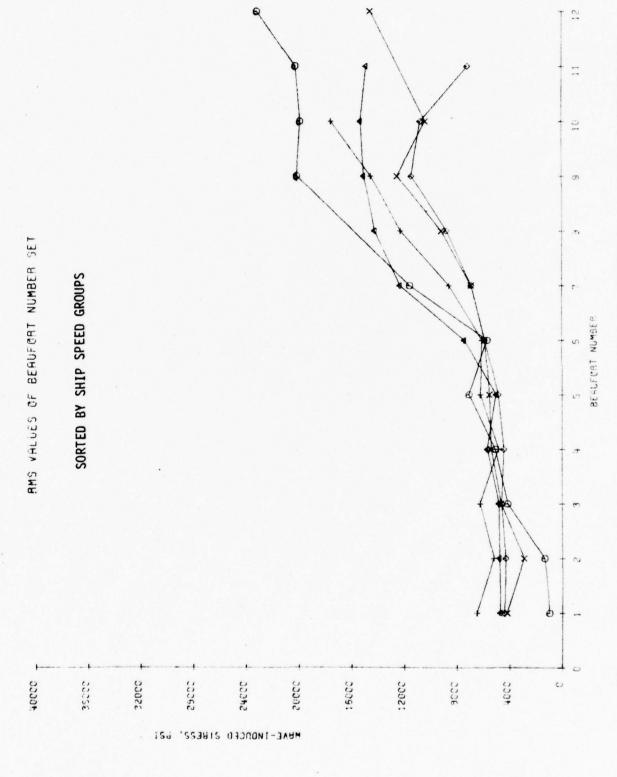


Figure 8-19. MAX WAVE-INDUCED MID VERT. BENDING STRESS VS BEAUFORT NO.-MCLERN THREE SERSONS

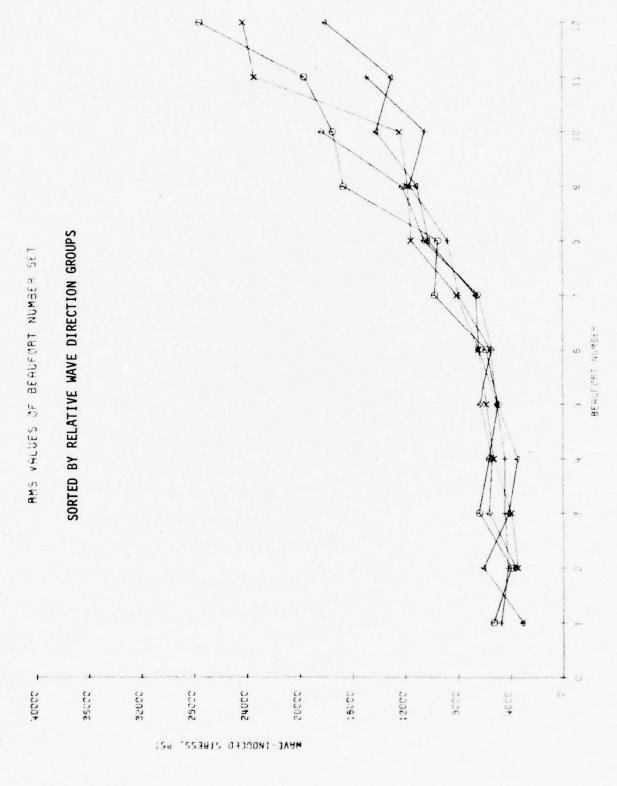
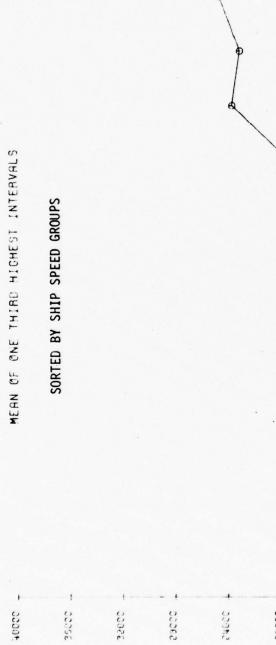
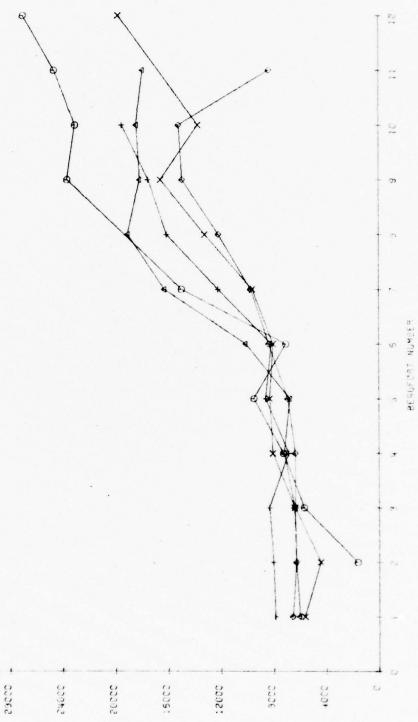


Figure 8-20. MAX WAVE-INDUCED MID VERT, BENDING STRESS VS BERUFORT NO.-MCLERN THREE SERSON



NEVE-INDUCED SIRESS, PSI



MAX WAVE-INDUCED MID VERT, BENDING STRESS VS BEAUFORT NO. -MCLEAN THREE SERSONS Figure 8-21.

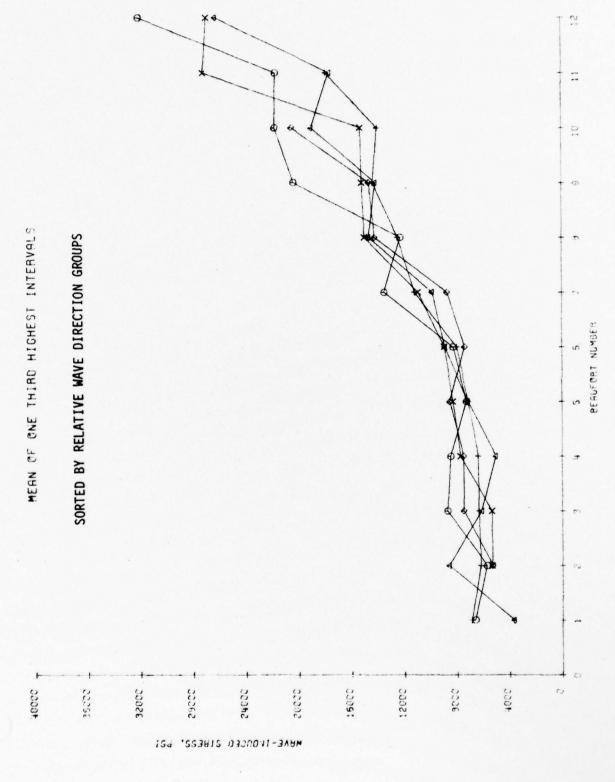


Figure B-22. MAX MAVE-INDUCED MID VERT, BENDING STRESS VS BEAUFORT NO.-MCLEAN THREE SEASONS

Figure 8-23. MAX MAVE-INDUCED MID YEAT, BENDING STRESS VS BERUFURT NO. -MOLERN THPREE SEASONS

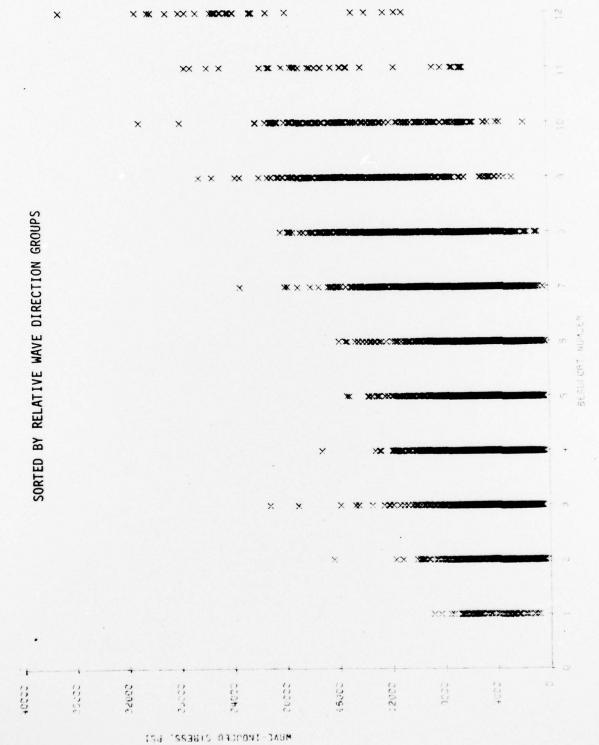


Figure 8-24. MAX WAVE-INDUCED MID VENT. BENDING SIRESS VS BEADFORT NO.-MCLERN TMREE SERSONS

APPENDIX C

LISTING OF OVERALL MAXIMUM PEAK-TO-PEAK LONGITUDINAL VERTICAL BENDING STRESSES

This appendix contains a listing of maximum peak-to-peak longitudinal vertical bending stress for each digitized interval. The peak-to-peak value is calculated by subtracting the maximum negative excursion from the maximum positive excursion. Since these maxima are not necessarily consecutive, their value does not, in general, correspond to the definition of the maximum peak-to-trough value. A drift in the average value (e.g., diurnal variations) during the interval may be reflected in an increased peak-to-peak value. Each maximum applies only to the 20-minute segment in each interval characterized by the digital record. The interval designation is identical to that used in Appendix A.

			MO	
SEA LATE MCLEAT 1975	SEASTE	DIGITAL.	MCI.EA"21760W01349	03435
VYAGE NUMBER 60W			MCLEA::21760W01350	04014
MCLEA::21760W00101	06238		MCLEAU21760W01351	03100
MCI.EA:21760W00102	04936		MCLEAT21760W01352	02917
MCLEAT21760W00103	06201		MCLEAT21760W01453	03093
MCI.EA:21760W00104	06002		MCLEA"21760W01454	02925
MCI.EA: 21760W00205	05949		MCLEAT21760W01455	03069
MCLEAT:21760W00206	05804		MCLEA::21760W01456	03481
MCLEA:21760W00207	05873		MCLEA::21760W01557	03954
MCLEA:21760W00208	06757		MCLEAT21760W01558	04578
MCLEAT:21760W00309	06726		MCLEAN21760W01559	04745
MCL.EAN21760W00310	04235		MCLEAT21760W01560	05629
MCLEA:21760W00311	07137		MCLEAT21960W01601	06330
MCLEA::21760W00312	06201		MCLEAT21960W01602	06041
MCLEAT:21760W00413	05172		NCLEA":2196@W01603	09651
MCLEAN:21760W00414	06125		MCLEAT 21960W01604	08996
MCLEAT:21760W00415	05691		MCLEAT21960W01705	13764
MCLEA::21760W00416	04570		MCLEAT:21960W01706	14484
MCLEAT:21760W00517	04943		MCLEAT:21960W01707	11677
11CLEA: 21760W00516	04943		MCLEA"21960W01708	14069
MCL.EAM21760W00519	03763		MCLEAU21960W01809	10047
MCLEAT:21760W00520	04677		MCLEAT 21960W01810	11296
MCLEAT:21760W00520			MCLEAT21960W01811	12850
MCLEAT:21760W00622	03809		MCLEA:21960W01812	11540
MCLEAT:21760W00623	04167		MCLEAN21960W01913	05233
MCI.EAT:21760W00624	04113 04273		MCLEAT 21960W01914	06543
MCLEAT:21760W00725			MCLEAT21960W01915	07563
MCLEA::21760w00726	03093		MCLEAN21960W01916	06436
	03672		MCLEAN21960W02017	08371
MCLEAT21760W00727 MCLEAT21760W00728	04540		MCLEAN21960W02018	08646
MCLEAT21760W00829	05812		MCLEAT:21960W02019	06756
MCI.EAT:21760W00830	10550		MCLEAN21960W02026	05157
MCLEAT21760W00831	09956 07640		MCLEA::21960W02121	05202
MCLEA121760W00832	13490		MCLEAT:21960W02122	05195
MCLEAT:21760w00933	10002		MCLEA: 21960W02123	05339
MCLEAT 21760W00934	09225		MCLEA::21960W02124	04829
MCLEAN21760W00935	13460		MCLEAT21960W02825	03984
MCLEA::21760W00936	09605		MCLEA: 21960W02226	03558
MCLEA*:21760W01037	08683		MCLEAN21960W02227	03032
MCI.EAT21760W01038	09224		MCLEA::21960W02228	03222
MCLEAU21760W01039	08463		MCLEA::21960W02329	02795
MCLEAT21760W01040	08569		MCLEAT21960W02330	03077
MCLEAU21760W01141	09422		MCL.EAT:21960W02331	03489
MCL.EAT:21760W01142	08455		MCLEA::21960W02332	03702
MCLEA*:21760W01143	06376		MCLEA: 21960W02433	04060
MCLEAT 21760W01144	06855		MCLEATI2196@W02434	04205
MCLEAN:21760W01245	08097		ticlea::21960w02435	05910
MCLEAT:21760W01246	06208		MCLEATI21960W02436	07899
MCLEAT:21760W01247	05492		MCLEA:21960W02537	08250
MCLEAT:21760W01248	04197		MCLEAT:21960W02538	09666
110321113110001240	0417		MCLEA"21960W02539	09164
			MCLEA::21960W02540	09133
			MCLEAT21960W02641	05339

MCLEAT:21960W02642	05614	VOYAGE NUMBER 61E	
MCLEAT:21960W02643	06361	MCLEAT22361E00205	01246
MCLEAT:21960W02644	05393	MCLEAN 22361 E00206	01950
MCLEAT:21960W02745	03306	MCLEAT:22361E00207	01015
MCLEAT:21960W02746	02750		00972
MCLEAT:21960W02747		HCLEAT: 2236 1 E00208	
MCLEAT21960W02748	02369	MCLEAN22361E00309	01498
MCLEAT:21960W02.48	01889	MCLEA*122361E00310	01676
MCLEAT:21960W02850	01736	MCLEA::22361E00311	01816
MCLEA: 21960W02851	01684	MCLEA 22361E00312	01416
MCLEA::21960w02852	Ø1652 Ø1668	MCLEAT22361E00413	01943
MCLEAT:21960W02852		MCLEAT22361E00414	01802
MCLEAT:21960W02953	01067	MCLEAT;22361E00415	03069
MCLEAT:21960W02954	01120	MCLEAT22361E00416	02061
MCLEAT:21960W02956	01104	MCLEA 122361E00517	08074
MCLEA::21960W03957	01036	MCLEAT:22361E00516	Ø5316
	00777	MCLEAT:22361E00519	05249
MCLEAT21960W03058	01067	MCLEAN22361E00520	04389
MCLEA::21960W03059	01013	MCLEAN22361E00621	06087
MCLEAN:21960W03060	00784	MCLEAN22361E00622	07214
MCLEAN:22160W03101	00753	MCLEAT22361E00623	06028
MCLEAT: 22160W03102	00836	MCLEAN22361E00624	08830
MCLEAT:22160W03205	00897	MCLEAT22361E00725	07933
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13 ABSTRACT									

One of the class of eight SL-7 high speed containerships has been extensively instrumented with stress, strain and motion sensors. These have been modified for the Third Season of data acquisition to emphasize measurement of hatch corner and bow sideshell strains. Much of the previous instrumentation inventory, including a wave height radar and Tucker wave meter, has also been employed in the Third Season. This report contains a summary of the recorded data, examples of the analog records, a catalog of the data formats and a listing of the available data intervals. Some analysis of the data is also reported including midship bending stresses encompassing all three data seasons.

Data collection for the third season began with the west-bound North Atlantic voyage 59 on January 17, 1975 and terminated with westbound voyage 61 on March 17, 1975.

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